ORIGINS

• Journal of the Biblical Creation Society •

Volume 5 Number 13

In this issue:

The Authority of Scripture

Vestigial Organs

Human Language

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Vol 5 No 13
October 1992

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Writing for Origins

Origins is looking for talented new writers, particularly those who have had experience in a specialised field of science or theology, in relation to creation, and who are in agreement with the aims and basis of the BCS. In addition, writers in a popular vein are needed, but accuracy and solid content are still essential. Any manuscripts for consideration should ideally be typed, double-spaced and sent to the Editor. Notes of guidance to authors are available on request. News items that may be of interest are also sought. We now welcome articles on disk in most formats, but 3½ ″ HD, Wordperfect 5.1 is preferred; media will be returned after transfer of the file.

Editorial Policy

Whilst **Origins** exists to further the aims of the Biblical Creation Society, opinions expressed in articles and signed editorials are not necessarily shared by either the Editorial Committee or the Society.

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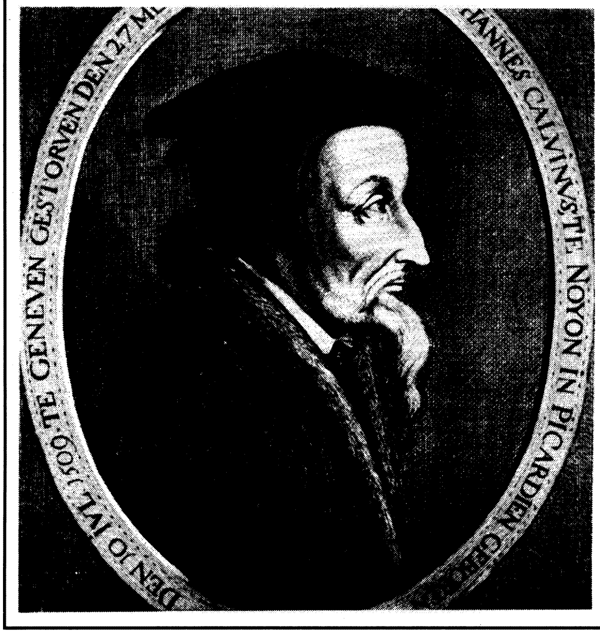
Editorial

THIS YEAR opened with controversy for the Biblical Creationist. The Royal Institution's BBC–TV Christmas lectures were taken by Richard Dawkins. Though an able biologist, who could have used the opportunity (as is traditional) to hold his young audience spellbound with the wonders of science, he used it rather as an opportunity to attack a belief in the Creator. To the listener, it was apparent that his primary concern was to dismiss a belief in God. His position is an extreme one: most non-Christian scientists adopt an agnostic position, but Dr. Dawkins was clearly atheistic.

Once you have adopted that position, you are left to struggle to explain the natural system without a Creator. The result, to the intelligent viewer, was an incredible struggle to distinguish between design (in the mechanical world) and 'designoid' (as in the living world) to use his terms. Though there is no logic to this distinction, it is even more ludicrous to the evolutionist. To him, there is no essential difference between the living and non-living worlds—both are mechanistic!

One thing that struck me was the clear line of demarcation that was drawn. Where do our theistic evolutionist brethren stand with respect to such lectures? These brethren are anxious to hold a high view of the Bible hand-in-hand with a respect for scientific theory. One respects their desire, but such broadcasts show their real dilemma. A foot in both camps is not really possible. Indeed, at some point, as Christians, they have to separate from a purely mechanistic scientific community to declare their belief in a God who was, and is, involved. There are obviously problems to be solved. We do not have all the answers, but, with the Bible as our rule, we seek to apply good scientific principles to enable us to interpret what we see around us. Like any scientist, we may pursue false paths for a while, but we trust that our Christian integrity allows us to face up to that and review our methodology. It would be good to see such honesty amongst evolutionists who cling to theories which apparently fail to accord with the facts.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HANNES CALVINVS TE NOYON IN PICARDIEN GEB

John Calvin

We welcome, therefore, challenges from evolutionists, or, indeed, fellow creationists, who point out flaws in our arguments. We review our position and think again. We have appreciated the series of papers by Michael Garton on geology and the Bible. (The final part is still to come). Other invaluable contributions to this work have come from Joachim Scheven and David Tyler. Other articles have looked at design. Sylvia Baker's articles on the eye have left us amazed. Last time, John Ling wrote on hæmoglobin. Henk Murris has contributed to a paper on the same theme in this issue, rejecting the concept of vestigial organs but looking at design in the foot of the horse and the human embryo. More articles on the theme of design will follow.

But, underlying it all: we are the *Biblical* Creation Society. Our aim is not merely to propagate creationist views (and less still to attack evolution), but rather to ask, 'What does the Bible say?'

In a court, we are presented with two lines of evidence: eye-witness testimony and hard evidence. It is often assumed that there were no eye-witnesses to the origin of the world and life. But, of course, the Trinity was there. God has left us His written testimony: the Bible. So, in all honesty, we must listen to it.

How do we respond to the tension between Biblical testimony and scientific theory? We are grateful to Clifford Pond for confronting this issue in our primary paper this time. To ignore the Scriptural position, or to write it off as fanciful, is to behave as an atheist. It is of such that the Psalmist says, 'The fool has said in his heart, "There is no God."' If we leave Him out of our thinking and reasoning, how can we expect non-Christians to take Him seriously into account?

Maybe, reader, you are not a Christian. You perhaps believe in the scientific approach of experimentation. Be encouraged, the Psalmist also holds to that position. He encourages you to 'taste and see that the Lord is good.' As creationists, we are those who have trusted ourselves to Him and found Him faithful and true. It is, therefore, no hard thing to take His testimony at face value. Having done that, we search the Scriptures and nature to 'think God's thoughts after Him.' It is exciting and satisfying. You, too, can find Him wholly true.

J.H.J.P.

Creation in the News

Signs of the *Times*

'SCIENTIST threatens to make Darwin extinct' So read the title of the *'Home News'* section of the Sunday Times on the 23rd of August. In referring to Richard Milton's new book *'The Facts of Life: Shattering the myth of Darwinism,'* they write:—

'An authoritative compilation of scientific findings suggests that the theory—taught as gospel throughout the world—is so discredited it should be abandoned as an 'elegant' but unsupported myth'.

Lest the readers should panic we are assured that Milton:—

'... has no creationist or other religious convictions.'

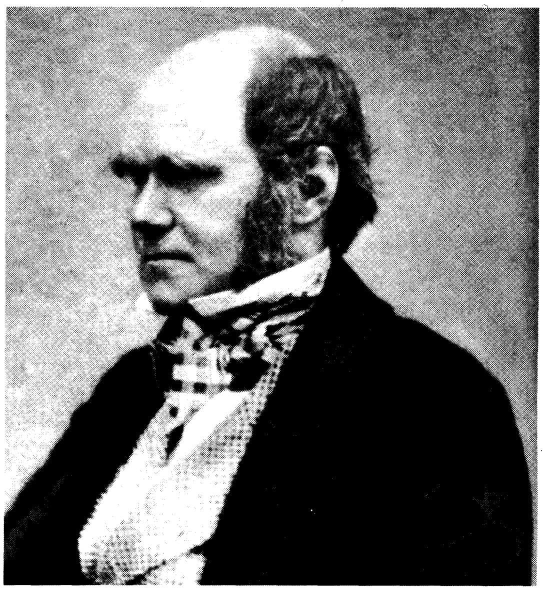
The article then goes on to list several scientific findings indicative of a young earth, in which there has been no time for evolution to occur. Wrongly dated recent lava-flows, polystrate trees, the fossil bird that pre-dates Archæopteryx, the evolutionary series for the horse, the scarcity of radiogenic Helium in the atmosphere, and the problems of radio-carbon dating are all mentioned. One wonders which creationist literature he has been reading. The only fly in the ointment is that he is quoted as referring to the work on apparent acquired traits in bacteria that is leading to a resurgence of Lamarckism (see *Origins* 4:11 p.14). Thus we must be cautious, and try and establish exactly what his philosophical foundations are, and where he might lead his readers in future.

Two days later, T*he Times's* leader was *'Origin of Species.'* Beginning with comment on the opening of this year's British Association for the Advancement of Science meetings, one was gently led to Milton's book again. The philosopher Mary Midgely's view that evolution is a religion is mentioned, as is Sir Peter Medawar's comment that:—

'There are philosophical and methodological objections to evolutionary theory ...'

One can do no better than quote their concluding remarks about Milton's book.

'It is a readable digest for the layman of doubts the experts themselves have expressed. This could shake the 'religion' of evolution as much as *'Honest to God'* shook popular Christianity 30 years ago. All the doubters about Darwinism lack is a convincing new theory: they cannot go back to Sir Richard Owen's of 150 years ago. The search for a better theory is now wide open. Sir David Attenborough may be assured that the search will make fascinating television.'



Charles Darwin

Comment.

It is obvious that this new found openness about the inadequacy of Darwinian or Neo-Darwinian mechanisms does not inevitably lead to a conviction that the Bible's account must therefore be true. However, we must pray that we can at least point out to people that we have been presenting this information for many years, and that it has been vigorously censored by the media. Now that such evidence has been admitted by *'The Times'* perhaps it will ease the fear of those who are loath to be classified as 'simple-minded naïve Fundamentalists.' Let us never forget however that the healing of spiritual blindness (or partial sight) rests with the Comforter who dwells within our hearts. We would be foolish to depend upon any lesser resource in the battle for men's souls, and in daily striving to grow more like our Saviour.

P.S.

The Authority of Scripture

Clifford C. Pond

THE two sons of Robert Maxwell, Kevin and Ian, refused to answer questions about their financial transactions put to them by a 'select committee' appointed by a British government. Some say they had the right to keep silent. Others agonise over what they see as defiance of the highest authority in the land. I have no idea which of these positions is right, but the whole scenario raises the question of the nature of authority. In this case the brothers refused to recognise the right of the committee to subject their lives to scrutiny.

Again, traders are defying the law by opening their shops on Sundays. The government refuses to enforce the law, partly because they want to change it and partly because a 'higher authority' may at some time in the future make present laws obsolete. Where then is the final authority to say what is right and to insist on conformity to its rulings?

Much more important are questions asked about the Bible. By what authority is the Bible the standard that places our lives under scrutiny? By what authority are we obliged to receive and obey its teaching? Is it possible that the Bible itself should be subject to a higher authority? Our contention here is that since God is the author of Scripture this places upon us all the obligation to believe and obey what it says. The nature of authority depends on the person who exercises it—in this case the person is God.

Rejection of Authority

The very use of the word authority strikes a discordant note today. There is a strong resentment of any idea that we must submit to others.

Children rebel against parental authority and the discipline of teachers at school. Traders snap their fingers at the law of the land and the financial world becomes a jungle. The police, as representatives of authority, are less respected than formerly and the corrupt actions of a small minority have helped to hasten this process. The claim is to the right to make personal judgments rather than accepting an external authority. It is a glorification of the modern intellectual position—'we know ...'—not even 'we think ...'

Paul Johnson in his *'A History of the Modern World'* (1983) traces the recent origin of this general loosening of respect for authority:

> 'Marx, Freud, Einstein all conveyed the same message to the 1920's; the world was not what it seemed. The senses, whose empirical perceptions shaped our ideas of time and distance, right and wrong, law and justice, and the nature of man's behaviour in society, were not to be trusted. Moreover, Marxist and Freudian analysis combined to undermine, in their different ways, the highly developed sense of personal responsibility, and of duty towards a settled and objectively true moral code, which was at the centre of 19th century European civilisation. The impression people derived from Einstein, of a universe in which all measurements of value were relative, served to confirm this vision—which both dismayed and exhilarated—of moral anarchy.'

As society has turned its back on God, so the effectiveness of all lesser authorities has diminished. Similarly, as churches are perceived themselves as having some reluctance to submit to Scripture, society has followed suit. In this atmosphere, to speak of the authority of Scripture is to risk the retort, spoken or unspoken, 'We don't want this Book to be our king' (*c.f.* Luke 19:14). In fact, to seek a return to the authority of Scripture is a kindness, not appreciated maybe, like evil-tasting medicine, but kindness nevertheless. Rebellion against authority leads ultimately to anarchy and anarchy to misery and this is infinitely more so when the rule of God is rejected.

So, in a real sense, an article like this becomes a gospel tract!

Beginning with God

Our understanding of the Christian faith must begin with God himself. This may seem obvious, but it is all too easy for us to forget it under the pressure of discussion about detailed aspects of the faith, or specific parts of Scripture. The Bible is not a record of man's search for truth, rather it is God telling us the truth about himself, the world and ourselves. To paraphrase W. Paley, a former Cambridge professor:

> 'If a man can write a letter to a friend leaving no doubt that it came from him and not from someone else, surely, God who is the Supreme Being, is able to send a message to men in such a way that they can know for certain that it is from Him.'

If, as B. B. Warfield insisted, 'what the Bible says God says,' then the authority of the Bible is God's authority. According to my definition, this obliges us to believe and obey the Scriptures. There is no possibility of the authority being shifted elsewhere. God is God, there is no other, and He is unchangeable. Having spoken in the Scriptures, there is no need and no possibility He will modify what He says, even for the sophisticated 20th century. Truth is truth and the only standard by which it can be measured is God—and God has spoken.

God is also omniscient. He has always known everything. He knew everything when He told Moses how the world began, and He knew the questions that would arise in our day about that account.

It is impossible that God told a story of creation He knew was not true, or told it in such a way as to confuse His people, or left the account so defective that it could not stand the light of developing human knowledge. When we question the accuracy or adequacy of the record of Scripture, we question the wisdom and integrity of God himself. This is the issue we overlook when we fail to begin our thinking with the fact of the unchanging, omniscient God of all goodness.

Miles Coverdale

> 'The claim of the Word of God upon us does not depend merely upon our relationship to him, as creatures and subjects. We are to believe and obey it, not only because He tells us to, but also, and primarily, because it is a true word. Its author is 'the God of truth' (Psalm 31:5; Isaiah 65:16), 'abundant in ... truth' (Exodus 34:6); His 'truth reaches to the clouds' (Psalm 108:4, *c.f.* Psalm 57:10), *i.e.* is universal and limitless. Therefore His 'word is truth' (John 17:17). 'Thy word is true from the beginning' (Psalm 119:160). 'You are God, and your words are true' (2 Samuel 7:28). (J. I. Packer. 1973)

It seems reasonable for us to begin our thinking with the Bible because it is the source of revealed truth. However, if we do that, we may become so absorbed with the human element in the Bible and questions of interpretation to the extent that we forget that this is the voice of the eternal God.

Both Jesus Christ and the Bible—human and divine

There is a parallel between the Bible and the person of our Lord Jesus Christ. Each is both human and divine. We can read the story of Jesus, as many have done, and see only the human element, missing the central issue that he was God before he took a human nature. Begin with Jesus Christ as the eternal Son of God, then His human nature is seen in a right perspective—indeed, it becomes even more glorious in its beauty and utter perfection. When Jesus spoke, the voice was human, the truth was divine. The truth was not diminished by being conveyed through human instrumentality. In a similar way, the voice (or pen) of the Bible is human, but the truth conveyed is the unchangeable wisdom of God. Jesus is one person; we do not ask which of His words are human and which are divine. He admits to limitations arising from his voluntary submission to earthly experience. In the same way, the Bible is silent on matters we do not need to know at present. However, all the words of Jesus are true and trustworthy and so are all the words of Scripture. Article IV of the Chicago Statement on Biblical Inerrancy (1978) says:

> 'We affirm that God who made mankind in His image has used language as a means of revelation. We deny that human language is so limited by our creatureliness that it is rendered inadequate as a vehicle for divine revelation. We further deny that the corruption of human culture and language through sin has thwarted God's work of inspiration.'

An Act of Faith

Submission to the authority of Scripture is in the first place an act of faith. Imagine a box with a very desirable picture on the lid announcing its contents as a jigsaw puzzle of 2,000 pieces from which that picture can be constructed. Do we ask for proof that the pieces will in fact make up the picture before we begin to put them together? No, we proceed on the assumption that they will and prove it to be so in practice. Like all illustrations, this one must not be pressed too far, but we see that the Bible claims to present us with the truth of God and we prove this by observing how its teaching corresponds to the undoubted facts of life. Faith comes first but in the goodness of God faith can be confirmed in many ways.

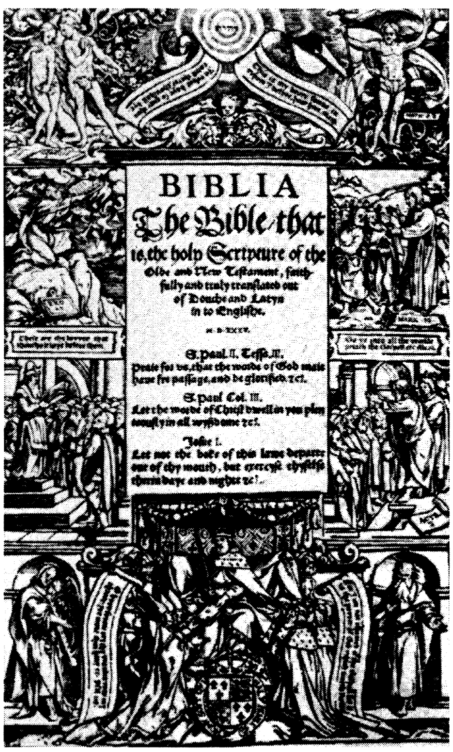
We will leave aside the evidence for the inspiration of Scripture drawn from the Bible itself. Our subject is not the inspiration of Scripture but its authority. True the latter rests on the former, but here for want of space we must assume the former. There are at least three lines of evidence to confirm us in our act of faith in submitting to the authority of Scripture.

1. *The example of Jesus Christ*

The first and most important line of evidence is the attitude of Jesus Christ to the Scriptures. Norman L. Geisler (1979), commenting on the Chicago declaration quoted earlier says:

> 'The authority of Christ and that of Scripture are one. As our prophet, Christ testified that Scripture cannot be broken. As our priest and king, He devoted his earthly life to fulfilling the law and the prophets, even dying in obedience to the words of Messianic prophecy. Thus, as He saw Scripture attesting Him and His authority, so by His own submission to Scripture He attested its authority.'

The last point here could not be more telling. It is an increasing habit to try to drive a wedge between Jesus Christ and the Scriptures—the living word and the written word. The position taken is that Jesus Christ can be trusted but the Scriptures are not totally reliable. On this basis, an all-loving Jesus misleads us on the vital issue of the authority of Scripture. This all-wise Messiah is apparently mistaken about something on which our salvation depends. But as we read the New Testament, we find someone who Himself reverenced the Scriptures and meticulously obeyed them and who commanded his followers to do the same. For Jesus Christ, the Scriptures were God speaking to man and were therefore to be believed and obeyed even at the cost of life itself.



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The Bible that
is, the holy Scripture of the
Olde and New Testament, faith-
fully and truly translated out
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Title page of Coverdale's Bible

This is a vital issue so we must examine it in a little more detail. The hard work has been done by John W. Wenham in his book, *'Christ and the Bible'* (1984). The evidence is overwhelming that Jesus' mind was saturated with Scripture. At the slightest turn an appropriate quotation or allusion was ready to hand and frequently His language was simply impregnated with Scripture. This was not a mere love of a certain form of literature, nor an emotional cleaving to the words of his Father.

Any analysis of our Lord's use of the stored up knowledge of the Old Testament will show that for Him Scripture was God's authority in every situation. This could be illustrated endlessly because the four gospels record Jesus using no less that 62 actual quotations from the Old Testament, not to speak of a host of allusions. His immediate reaction to every question was to refer to Scripture. Have the scribes a question about law (Matthew 12:28–31)? Have the Pharisees a question about conduct (Matthew 19:1–9)? Have the Sadducees a problem about the resurrection (Matthew 22:23–32)? The appropriate Scriptures are not merely quoted and interpreted but they are the final word on each subject.

John Wenham cites a particularly interesting case of our Lord attributing to God words that originally were not spoken but were a written comment on the marriage relationship (Matthew 19:4–6, *c.f.* Genesis 2:24). For Jesus, if the words are in Scripture they are God's words.

Our Lord never once questioned the record of Old Testament history. From references to the creation of man and woman right through to the end of the recorded history of Israel (Matthew 19:4–6; Matthew 23:35–36), Jesus refers to great and small events and as far as He is concerned they happened just as Scripture says. His authentication of the parts are amply sufficient to give confidence in the whole.

Our acceptance of the authority of Scripture is founded on the authority of the eternal Son of God. Attempts are made to undermine this position by claiming that Jesus was adapting His teaching to the ignorance of the people of His day. Some say this was because Jesus was a child of His age, just as ignorant as the rest. Such a position can only be held by those who delete from the gospels all references to our Lord's amazing knowledge of people, of His own future and that of the world. Jesus claimed to reflect God's wisdom in his teaching (John 7:16; 8:28; 12:49–50; 14:24); if He did not He was a deceiver and not worthy of one moment's further attention. Others say Jesus did know the truth about the unreliability of Scripture, especially in its record of miracles such as the Creation, but that He deliberately held back from exposing this not wanting to disturb the simple faith of the people. That is to 'damn with faint praise'—such a policy would have been deliberate deception and in any case the idea of such compromise cuts across all we know of the ministry of one who said 'I am ... the truth.' Furthermore, again and again Jesus challenged the conventional wisdom of his day. His position frequently was 'You say ... but I say ...' (Matthew 5:31–32, 43–44; 15:5–7; 23:16–22).

Another attempt to escape the full authority of Jesus Christ is the claim that He was infallible in religious and moral matters but not in areas involving scientific knowledge. John Wenham comments:

> 'There is no trace in the teaching of Jesus of a dichotomy between the non-moral world of fact, concerning which He was fallible, and the world of religious experience concerning which He was infallible. This dichotomy of thought, which goes right back to the mediaeval disjunction of natural and revealed theology, is (as F. A. Schaeffer is never tired of proclaiming) quite unbiblical. The world of science and history is as truly God's world as the world of religious experience, and is the very medium of revelation. There is no reason to think that the Father allowed Jesus to go wrong in the one sphere but kept Him right in the other. Indeed, the difficulties in the sphere of morals are far weightier than those in the sphere of history.'

The first line of evidence confirming our faith is the acceptance by Jesus Christ of the truth and the authority of Scripture in every area of knowledge and conduct.

2. *Faith confirmed by the Apostles*

This acceptance of the truth and authority of Scripture by Jesus rubbed off on to the apostles who are our second line of evidence. It is sometimes assumed that Christ and His apostles did not face the kind of problems we have in the 20th century, but this is not so. Clearly the problems take a different shape in the light of scientific advance, but in essence the problems were the same for the early church as for us. They would have been tempted to trim their sails according to the prevailing wind, just as we are. For example, as David Gooding points out in the introduction to his work on the Acts of the Apostles (*True to the Faith*, 1990), the prevailing philosophical wind among pagans and in the Jewish hierarchy was that dead human bodies do not and cannot rise out of the grave. However, the Scripture was their authority so they preached the resurrection and suffered for their pains.

This same attitude, that the Scripture was their authority, applied to their message that there is but one God and one way of salvation. The modern tendency to admit other ways to God because of our greater knowledge of other religions forgets that the apostles were by no means ignorant of such things. They were aware of an array of religious beliefs and practices at least as broad as those of our day, if not so numerous. Nevertheless, the authority of Scripture held them captive and at the risk of their lives they proclaimed one God and one way of salvation.

The point I am making is that Christ and his apostles did not merely pay lip service to the Scriptures, or accept them as a general guide to be modified in the light of new evidence. They accepted the truth revealed in the Old Testament and submitted with total diligence to its authority. We must follow them with both the Old and the New Testament. Christ is our guide here as in everything else. He gave to the apostles the Holy Spirit who would lead them into all truth. He did not say that they would remember His teaching, rather that the Holy Spirit would teach them and enable them to remember. In other words, the authority of the New Testament is Christ's authority, and like the early church we are to be devoted to the apostles' teaching (Acts 2:42). The apostle Paul confronted the philosophies of his day with but one weapon in his hands—the Scriptures. He said 'Though we live in the world, we do not wage war as the world does. The weapons we fight with are not the weapons of the world. On the contrary they have divine power to demolish strongholds. We demolish arguments and every pretension that sets itself up against the knowledge of God, and we take captive every thought to make it obedient to Christ' (2 Corinthians 10:3–5).

3. *Faith confirmed by Experience*

The third line of evidence for the authority of Scripture is the way its interpretation of observable facts harmonises with human experience. This is why Paul has no hesitation in appealing to the corroboration of the consciences of his hearers. Professor C. E. M. Joad who dazzled radio listeners with his devastating use of logic on the weekly 'Brains Trust' during the Second World War was at that time an agnostic. Later he wrote *'The recovery of faith'* in which he tells us how he came to see in the Christian doctrine that which alone explains the facts. The first of those doctrines that were recovered for him was the fall of man. When man rejects God's authority he is in trouble. When we reject the moral code of Scripture, there is no adequate substitute and confusion and misery follow. When we reject the notion of man made in the image of God, the only substitute is God in the image of man. When creation is replaced by evolution, the horrors of practices of which even animals would be ashamed challenge human complacency, but alas! fail to destroy it. Submission to the authority of Scripture is indeed a journey in the dark because the world is a dark place; but the road is illuminated with confirming evidence that it is the right one, the evidence of Christ himself, of His apostles and of the history of mankind.

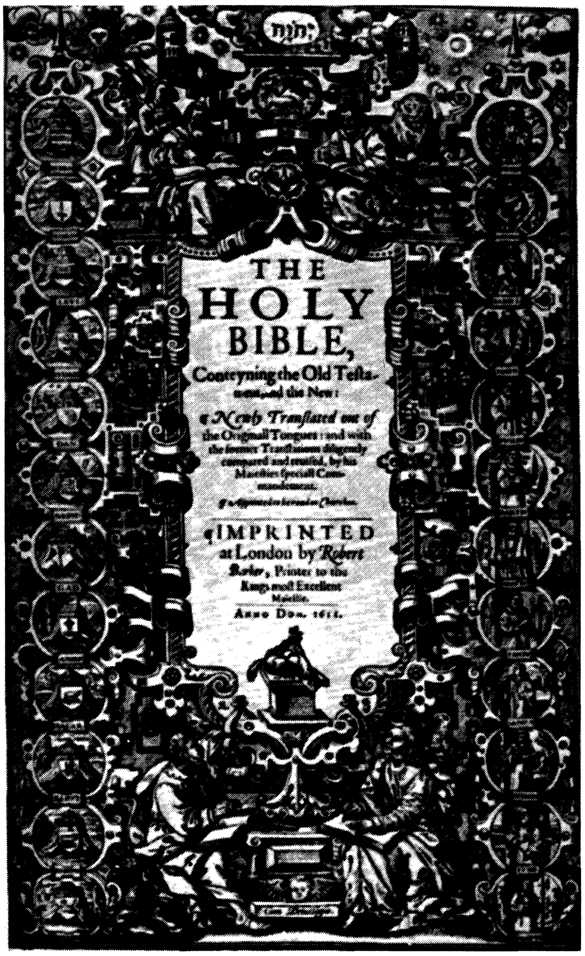
4. *Faith confirmed by Facts*

Contrary to the accusations of people antagonistic to the Christian faith, believers are able to look at all the facts honestly and without fear. We are not people who use religion as an escape from reality, but we can face reality and understand its meaning. We are not afraid of facts but we do claim the liberty to make sure that claims for 'facts' are supported by adequate evidence. More than that, with the Bible in our hands we claim the liberty to interpret the facts according to God's wisdom and not man's.

> 'The scientist is in no position to say anything more about the way in which God created the world and made the first man and the first woman than what the Scripture says. He is just as ignorant about it as any other man. Only God can know, and what God has chosen to reveal is self-interpreting. Why should the church think it necessary to ask scientists rather than ministers of the Word to expound the doctrine of creation.' (*The Whole Truth*. Paul Cook. Evangelical Press)

If a sign of maturity is the ability to reserve judgment on debatable issues then it behoves us to exercise both humility and patience when we are confronted with contradictions between Scripture and apparent facts. The temptation to rush into interpretations that fly in the face of Scripture, or to assume Scripture to be at fault should be resisted. As in the past, patient waiting for further light will always vindicate Scripture. When I was a teenage Christian (in the 1930's!) my faith was ridiculed on the grounds that the Bible predicted the destruction of the world (2 Peter 3:10,12). Such a thing was deemed impossible. No one laughs at that prospect now.

The same attitude of humility is required when the Bible records events that cannot be explained by normal scientific investigation. How do we react to the story of the sun standing still (Joshua 10:13), or of Jesus walking on the water (Matthew 14:25)? Do we argue that the Scriptures are wrong because such things cannot happen? In the end, that is to claim omniscience! A humble mind must at least allow the possibility that the power of God was at work. To say that miracles do not happen may expose the fact that our research is too limited. But to say miracles cannot happen is at best immaturity and at worst inexcusable pride. The application of this to the area of special interest to readers of this journal is obvious. The problem is to disentangle speculation from fact. If it be argued that speculation is necessary as a basis upon which research can proceed, so be it. We are all entitled to build up ideas based on such facts as we possess; we may even dream on the basis of fantasies. In the end we are only obliged to face observable facts and to give them some interpretation.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Newly Translated out of
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Title Page of King James's Bible, 1611

The Limits of Human Reason

Philosophers seek to interpret facts. When scientists become philosophers they are no better equipped than anyone else to tell us the meaning of what is seen. In other words we are in the realm of human reason, and human reason is a very poor tool. This is strong meat for modern man to digest, but the welfare of the human race would be much advanced if modern man were more humble.

> 'Children of the Enlightment, like moths to a light we are drawn to the incandescence of the autonomy of reason. But having destroyed all the pretensions of external authority, we have discovered, somewhat aghast, that reason is corruptible, that one human mind does not often agree in great detail with another human mind, that reason by itself is a rather stumbling criterion of truth, beset as it is by a smørgasbord of values, theories, and pre-dispositions shaped in remarkable independence of reason' (D. A. Carson. 1986).

One would have thought that the horrific suffering of the human race this century and the present confusions and alarming failures would have had a humbling effect on our minds; but we are as arrogant as ever. Furthermore, scientists have been proved wrong about the Bible often enough to warn them to beware of subjecting Scripture to their wisdom but alas! all too many still do it. The claim that the Bible is the judge of philosophy and not vice versa is seen by some people to arise from narrow-minded fundamentalist religion. In fact the claim has the support of more than sufficient evidence for those who have eyes to see it.

The Scriptures give us the meaning of life as it is. They shed the light of God's wisdom on all human experience and every area open to our research. We do not limit this authority to religious experience, leaving our understanding of the world around us to the vagaries of human wisdom. God is the originator and sustainer of all life and His authority is over everything. All things in politics, social life, the arts and science, every area of human knowledge, experience and responsibility must be subject to Him. We are not of those who dispense with their heads when they go to church! The Bible is our rule in everything because God is our rule in everything.

All Scripture is 'God-breathed.'

Nor is the authority of Scripture limited to the interpretation of what we see and experience. It not only gives us principles on which to make our judgments about these things. The Bible is trustworthy in itself. Jesus prayed 'Your word is truth'; in saying this He made no distinction between its various parts. The historical passages and the poetic passages are just as true and therefore just as authoritative as the didactic parts. Not only did Jesus make no difference in the weight He put on the various kinds of Scripture but He went out of his way to specify the law, the psalms and the prophets thereby giving His seal to the authority of every part of Scripture (Luke 24:44). It is true that poetry must be read as poetry, just as history must be read as history. But the question here is whether the fact that a part of Scripture is in poetic or symbolic form inevitably casts doubt on the truth of what it says. In his exposition of the gospel according to Luke, David Gooding has this to say in his comment on part of the nativity story:

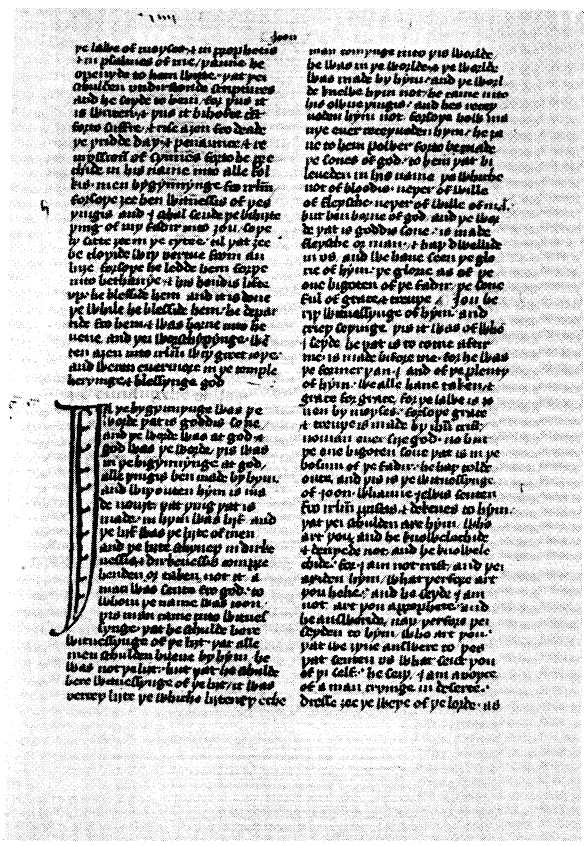
> 'Nor do we need to deny the symbolism of the story in order to maintain its historicity. History is solid, but without poetry it is dull and in danger of being meaningless; poetry is glorious, but without history,

insubstantial. In the gospel of Christ both meet. Only the dullest of pedestrian minds would insist that an event must either be symbolic or historical and cannot be both.'

Again it is rightly said that Genesis 1 is not written for scientists, but by the same token simplicity does not of necessity mean inaccuracy. Could it not be that God chose this way of doing things so that simple people would be able to understand?

Progression in Revelation

The authority of God in the Scriptures also extends to the structure of the Bible itself. He not only determined that there would be a variety of styles He also decreed that the method of revelation would be progressive in line with the gradual unfolding of his plan of redemption. We need not fear the fact of progressive revelation, but rather we need to rescue it from the hands of those who mis-use it. The Bible is not a progression from wrong ideas to right ones, but from embryo to complete maturity. Only those who fail to begin with God and for whom the Bible is man's search for truth can reach the conclusion that the Bible moves from incorrect ideas to correct ones. It is near blasphemy to suggest that God deluded people with untruth as a preparation for the truth. All Scripture is truth but that truth is gradually revealed. The implications of this are clear; there is no untruth or misleading information in the early books of the Bible. But we also see that the early books are to be interpreted in the light of later teaching.



A page from Wycliffe's New Testament

For example, at the beginning of the Old Testament story Abraham 'believed the Lord, and He credited it to him as righteousness' (Genesis 15:6). Not until the full light of the teaching of the apostles is it abundantly clear that the justification of Abraham anticipated the work of our Lord Jesus Christ. Now our faith is to be focused in Him (Romans 4:23–25). When Paul was compelled to oppose the contemporary teaching of salvation by works, he had no hesitation in referring back to Abraham. That story did not have to be corrected in the light of man's advancing knowledge, but was merely subjected to the development of God's revealed truth. Especially the authority of Christ and His apostles is to be respected. If we are to find some evolutionary process in the story of creation this will surely be hinted at as truth is unfolded. We would not expect a full scientific evolutionary explanation, but we would expect to see some movement, some hint that warns us not to take the creation story literally. However, nothing of the kind appears, rather both in the apostles' statements and in their analogies we are encouraged to take the creation story at its face value. According to Paul, the creation is a picture of our regeneration.

If creation was by an evolutionary process then so is our regeneration. But Paul uses the parallel without hesitation or qualification, and he was too well aware of the philosophical positions of scholars around him to be careless in his language on such matters.

The Example of Christians

Christians are in no position to blame others for their refusal to submit to biblical authority. Too often Christians and Christian scholars have fallen into the same error. We do so when we allow tradition to dominate our church life; many of us look at Scripture in the light of our traditions instead of subjecting the latter to the scrutiny of the Bible. This is particularly serious when the way of reconciliation to God is involved and we do well to follow the temerity of the Bereans in subjecting even the teaching of the apostles to the light of Scripture (Acts 17:11).

Christians can fail to give an example to others of diligent submission to the authority of Scripture. The world around us needs that example but too often we are controlled by unbelief, fear or pride; we do not care to be written off as obscurantists.

The Authority of Scripture and Revival

We see then that the authority of Scripture is the authority of God and we are confirmed in that position by the example of Christ and his apostles, by the facts and experience of life and by the internal evidence of the Bible itself. What the Bible says God says. It follows that philosophy, tradition and religious experience must be subject to Scripture. This is the very opposite to testing Scripture by our own ideas and feelings.

We should consider what to me is the most compelling argument of all. Whenever there has been a spiritual awakening among the churches there has always been at the same time a demonstration of the authority of God in and through the Scriptures, and therefore a return to total commitment to that authority.

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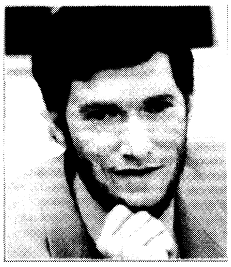
The 1992 Ken Ham Tour May 22–June 6

A Report by Peter Senior

BEGINNING at Leytonstone in London, Ken spoke at some fourteen main venues during the above period. His travels spanned the U.K. from Edinburgh and Glasgow in the north to Portsmouth in the south.



His message was the same as in 1990. Genesis contains the foundations of our central doctrines of Sin, Death and The Fall. If we allow the plain language of Genesis to be reinterpreted in each generation according to the Spirit of the Age, then our need of a Saviour will be subject to change, in clear contradiction to the rest of Scripture.

The impact of Ken's delivery stemmed as ever from his ability to reassure ordinary Christians that their faith does not fly in the face of rigourous science. Accounting for the leftovers from unrepeatable events is always open to different interpretations.

A classic example was given from the forensic tests carried out in the now infamous 'Dingo Baby' case in Australia. A child disappeared and its mother was wrongly imprisoned for murder. Tiny red flecks down in the foot-well of the parents' car had reacted positively to a standard test for blood. It took several years to prove her innocence. Eventually the crucial blood-stained clothing was found in a dingo cave. More relevant to this discussion though, was the discovery that the damning forensic test responds to rust-inhibitor as well as blood. Only time will show how many other iron-based substances will give the same response. This is not a criticism of individual scientists, but rather shows the fatal flaw in the philosophy that states that 'the present is the key to the past.'

Ken showed that the above example was entirely analogous to the change in geological opinion that the Colorado river cut the Grand Canyon over millions of years. A catastrophic origin is now admitted after the form of the side-canyons was studied, and the lack of a delta of sediment was acknowledged at the river's exit. The aftermath of the Mount St. Helens eruption produced a one-fortieth scale model of the Grand Canyon in less than a day. A river unblocked with a violent mud-flow that cut through solid volcanic rock and produced the same side-canyon structures.

We have been intimidated in the past by uniformitarian dogmatism that has not stood the test of time, unlike Scripture.

Vestigial Organs

A Creationist Re-investigation

Hendrik R. Murris

ONE OF THE PROOFS of evolutionary theory, as can be learnt from school textbooks and in popular scientific circles, is the presence of vestigial organs. The existence of such organs is taken as an example of evolutionary 'left-overs' from the past ancestry of that organism. That is the 'reason' we have a vermiform appendix, representing the remains of a large cæcum; the horse has small splint-bones, representing vestigial toes and so on.

From a creationist point of view, there is much more to say about this type of organ than simply anti-evolutionary remarks and statements about the variations in the building plans of our Creator. My intention is to give an introduction to creationist thinking in this area. Examples, some of which are well known, will serve as a start to this approach in creationist research. In this way it will be possible, not only to provide for an attack on evolutionary thinking, but also to give a better understanding of the functions of these created organs.

What are vestigial or rudimentary organs? 'A vestigial structure can be defined as a tissue or an organ modified during descent from one more fully developed and functional' (Wilson, 1982). Junker (1989) considers an organ to be rudimentary when it fulfils one or more of the following criteria:

1. It is functionless.
2. It has partly lost its function.
3. In other organisms a more pronounced form occurs as a complete and homologous organ.
4. There is an apparent contradiction between the structure and function.
5. There is an unusually large variation in the form of the organ between individuals.
6. An homologous organ is found in related organisms that is fully developed and functional, in contrast to the so-called vestigial organ.
7. Only a rudimentary form occurs, through the loss or alteration of structure by micro-evolutionary processes.

> ***Useless organs? Are they proven facts of evolution or is there any other explanation for these kinds of structures in the building schemes of major groups of organisms?***

This article only deals with the more classical 'evidences' for evolution contained in the first six criteria, because of their implications for macro-evolution. Evolutionary theory would claim that the reason why humans have such a thing as a vermiform appendix is that it represents the functionless remains of a large cæcum, a normal part of the digestive system of herbivorous animals. Because of this so called 'fact,' some people decide to remove this 'useless thing' by surgery, before they sail solo across the ocean. By doing so, they hope to avoid the risk of appendicitis. One of my pupils who was about 18 years old had such a plan, together with the replacement of his teeth, so that he could sail free from the fear of pain with artificial dentures in his mouth! This is an illustration of the effect of evolutionary thinking in everyday life.

How should we view these so called vestigial or rudimentary organs?

From a creationist point of view, it is a pity, not to speak of the annoyance, when one has to be continually finding arguments to counter evolutionary thinking. However, by such an exercise in anti-evolutionary thinking, we learn new things about the organ or part of the body concerned. Beyond this, we come to understand more about its function for the whole organism, or, expressed in another way, its meaning for the Creator's building-plan.

One leading man before Darwin, who was against any form of transformationism or evolutionism, was George Cuvier [1769–1832]. He was a strictly empirical scientist and he can be called the founder of modern palæontology. I would like to quote from John Hedley Brooke (1974) in his course book for the Open University (U.K.).

'Cuvier's own arguments against the transformation of species were primarily scientific and philosophical, his religious beliefs played but a secondary role. It was his interpretation of the principle of correlation that most militated against his acceptance of evolution: *'Each species was the result of a harmonious combination of structures— the function of each part in perfect correlation with the function of others'* (Cuvier, 1812).

In accordance with this teleological principle, any isolated variation in the construction of one part of an organism would lead to extinction, rather than improvement: webbed feet would not benefit an eagle! In order to

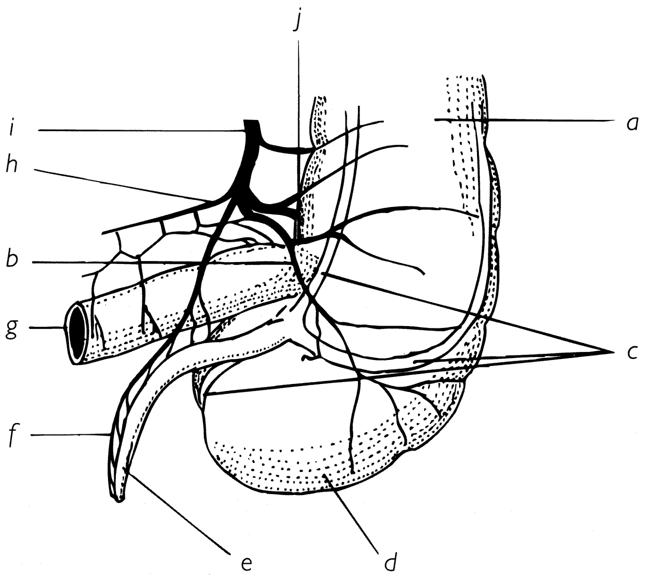


Fig. 1

a	*colon*	*f*	*appendicular artery*
b	*caecal branch of artery*	*g*	*terminal ileum*
c	*taenia coli*	*h*	*ileal branch of artery*
d	*caecum*	*i*	*ileocolic artery*
e	*vermiform appendix*	*j*	*posterior caecal artery*

survive, an organism would have to change *en bloc*, and to Cuvier, as to most of his successors, such an enormous mutation was inconceivable' (italics by H.R.M.).

I think that we can learn a lot from Cuvier, who was capable of reconstructing unknown species from a few fossil remains. In all his anatomical and reconstruction work he was both a morphologist and a physiologist at the same time. His method, based on the principle of correlation between form and function has inspired me to do the same every time I have opportunity.

Now we will turn to our vermiform appendix and short cæcum (Fig. 1). In humans, the colon and the cæcum have the same function, they support a population of symbiotic bacteria *(Escherichia coli)*. These help us to digest vegetable food and give us vitamin K, which we need for blood coagulation. The cæcum is a blind ending of the gut and a reservoir for our gut flora in cases of illness affecting the colon. During sickness, the colon may lose the natural population of very useful bacteria through diarrhoea. The vermiform appendix, as an organ producing white blood cells, is very strategically placed in this region which can be exposed to a large mass of bacteria.

The motivation for writing this article, that of introducing you to a creationist way of thinking about vestigial organs, emerged from the preparation of a school practical. The subject of the practical was the skull bones, teeth and nutrition of a wide range of animals with a variety of diets. In the literature I could not find anything about the function of the small back-tooth (molar) at the rear of the upper jaw of a tiger or cat (Fig. 2). The only remarks to be found were that this molar was rudimentary and had no function. I took offence at that remark and started a small investigation of my own with the aim of understanding the relationship between form and function as Cuvier had done. Why should it be that a cat has two useless molars in his mouth, because a cat or tiger has few enough teeth in any case? In other carnivores, such as a dog, there are a lot more molars, but of a different type. A cat basic kind or type (a term coined by Marsh, 1947) of animal can open its jaws to a considerable extent. When the mandible (lower jaw) closes with the maxilla (upper jaw), there is very little sideways movement, because of the shape of the joint. The muscles for biting are very strong and fast and the carnassial molars are very sharp so that when these carnivores are eating, it is conceivable that they could hurt themselves in the muzzle if the bite was slightly out of line. In this regard let us look to the position of that alleged vestigial molar (Fig. 2c). My own understanding of this diagram, is that this little molar fits like a safety block in the maxilla, to guide the big carnassial teeth in the mandible into the right position for the snipping work that they must do in combination with the big carnassials in the maxilla. It should be remembered that both sides of the jaws must do the same work of biting and cutting at the same time. In my opinion, this little molar is indispensable for the animal and strongly indicates that this mechanism was designed. Take the analogy of the adjustable spanner, combination tongs, or a mole wrench. These tools are designed and built by man for doing work with the aid of his hands. In the skull of an animal there is much less room for the long handles of such tools of course, so the solution of the great Designer is different. Think of all the equipment that is needed in the living animal: muscles, auxiliary

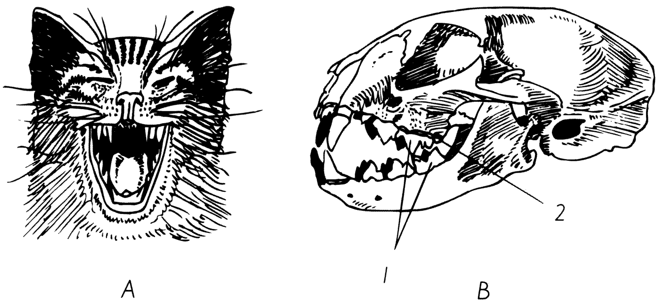
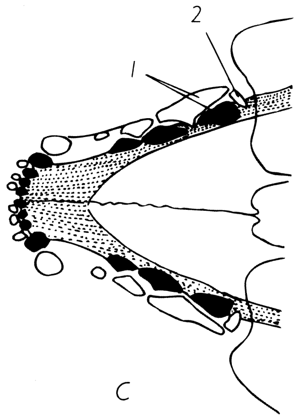


Fig. 2

A Open jaws of cat
B Skull of cat
1 Large carnassial molars
2 'Rudimentary' molar in upper jaw
C Relative position of upper (white) and lower (black) jaw in closed mouth of cat
1 and 2 as above



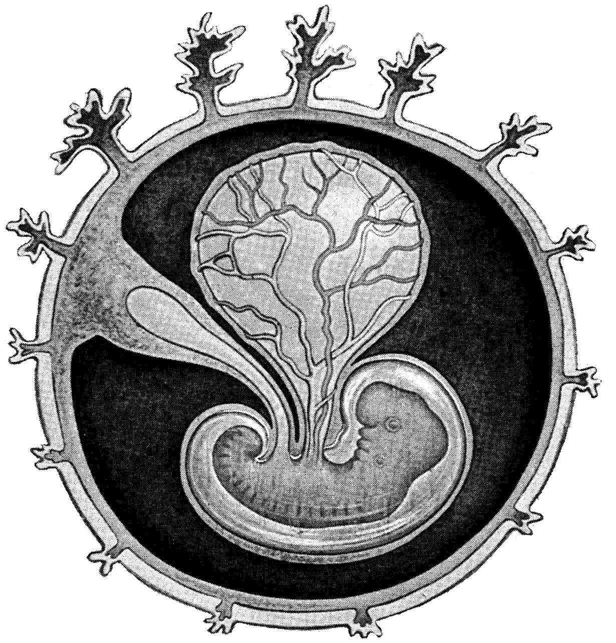


Fig. 3 Yolk Sac

glands, blood vessels, nerves, sense organs and so on. It is very important here to apply the Law of Correlation that Cuvier proposed (see Brooke,1974) and to understand both the structure and functioning of an organ in order to fully appreciate its role in the organism.

The next example takes us back to humans for a moment. Even in medical circles, it is taught that the so-called yolk sac in young embryos is in fact a vestige of the yolk sac of the egg-laying ancestors of man. The tissue of this organ, together with its blood vessels, grows around and over the yolk mass in the egg to obtain the nutrition required by the developing animal. Human eggs do not have such a yolk mass; nutrition and gas exchange occur by means of the umbilical cord or navel string. Thus the evolutionist concludes that the empty yolk sac has no function; it is just a rudimentary organ. A citation from my college textbook (Huettner, 1966) says:

‘The yolk sac and the allantois have remained vestigial organs throughout the entire development; they have become secondary in their importance in the development of man.’

The penetrating question regarding the function of this bag (let alone the allantois), with its blood vessels, for the young embryo is, in this way, easily solved: it is considered to have no function and further research is not necessary, we should go to the next question. I hope you understand that this manner of performing science is not real science. It obstructs science.

Can a young embryo, younger than the embryo in Fig. 3, with its beautiful yolk sac, afford the luxury of a relative very large, but useless organ? At this stage of development in the embryo, there is not a good connection with the mother, because the umbilical cord is not yet sufficiently well developed. Meanwhile, the embryo is growing fast and must stay alive: it needs nourishment and a rapid gas exchange of oxygen and carbon dioxide. This exchange occurs by diffusion and the requisite fast diffusion rate, at this stage of human life, is mainly dependent upon the concentration difference and a large surface area. Is there any organ to help the embryo in this crucial stage of development? Yes, the yolk sac! So the name ‘yolk sac’ is a very misleading one, borne out of evolutionary thinking. We need someone to think of a better name for this structure, a name which takes into account both the form and function. The work of Blechschmidt (1985) quoted in Junker and Scherer (1988) is very important in this field of human embryology.

‘... The yolk sac is indispensable for the development of the early embryo. The earliest stages of this organ can be found three days after fertilisation as a very small drop of fluid. After five days, when the embryo consists of two chambers, it forms the roof of the endoderm and the floor of the ectoderm on the area where it occurs. It functions as a feeding gland with actively and intensively working cells. Some cells cut themselves off and form red blood cells and so the ‘yolk sac’ is an important organ producing blood cells at a time when there are not as yet any bone marrow to function in this way.’ (free translation from the German).

The last example of the so-called vestigial organs that I will discuss is that of the ‘splint bones’ of the horse.

If you look at the legs of a horse and compare them with our own legs, then it is striking to see that the limbs of a much bigger creature are just as slender as, or even more slender than, the legs of a human. At the same time, the limbs of the horse have more strength, which can be used by the animal for jumping and trotting, bearing both its own weight and that of the rider as well when necessary. The stresses involved, not only in jumping, but also in landing on ground that is sometimes rough or bumpy, demand much from the structure of the foot in a horse. In what way are the legs and feet of a horse designed and built? If we only look at the bones, we recognize the building plan of a vertebrate creature, but in a modified form. The limbs of this animal conform to the basic pentadactyl design of the vertebrate limb and have been compared with others in a study of homology to establish supposed evolutionary relationships. Michael Denton (1985), in his *‘Evolution, a Theory in Crisis’* writes:

‘Since 1859 the phenomenon of homology has been traditionally cited by evolutionary biologists as providing one of the most powerful lines of evidence for the concept of organic evolution. As in so many other areas of evolutionary thought, no one has ever presented the argument with greater clarity than Darwin himself.’

He then quotes Darwin at length; a short piece is included here.

‘What can be more curious than that the hand of a man, formed for grasping, that of a mole for digging, the leg of the horse, the paddle of the porpoise, and the wing of the bat should all be constructed on the same pattern, and should include similar bones, in the same relative positions?’ Darwin cites Professor Flower here: ‘We may call this conformity of type, without getting much nearer to an

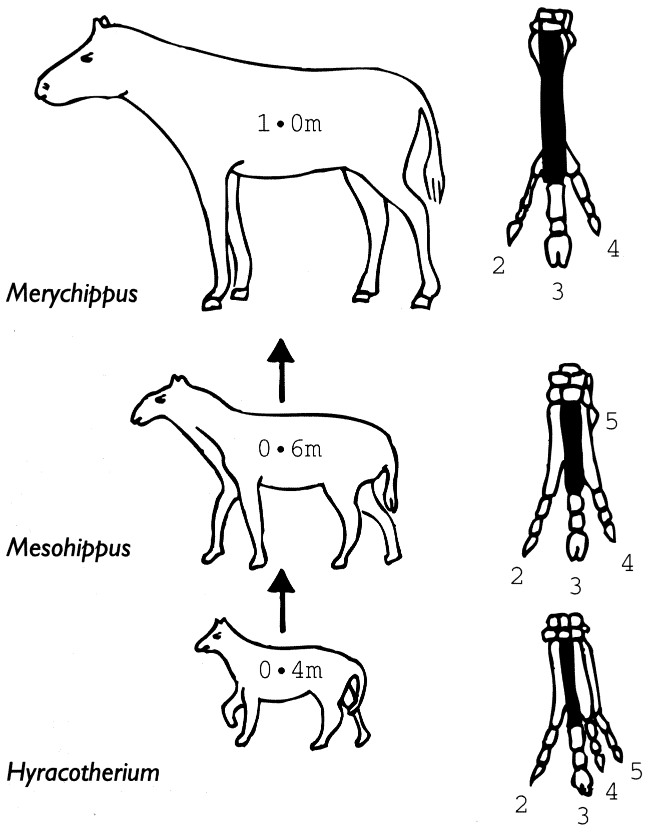


Fig. 4

explanation of the phenomenon' and adds 'but is it not powerfully suggestive of true relationship, of inheritance from a common ancestor? (1)'

As a creationist, I can identify with these statements, except in the reference to the term 'common ancestor.' It is easy to see the Great Designer behind the similarities in those building plans.

We return to the horse and consider the principle of correlation between the various functioning parts of the feet. Compared with our own hand or foot, which has five digits, the horse has only three metacarpal and three metatarsal bones respectively (Fig. 4). The middle bone of these three forms the strongest bone and the outer two, numbered two and four, which correspond to the homologous bones of the five-membered limb, are the splint bones. If you only look at the bones, it is possible to think in terms of reduction, bones number one and five having been completely lost in the course of the alleged evolution of the horse and numbers two and four being vestigial.

At the school where I teach, we have a beautiful skeleton of the left hind foot of an horse. The forefoot or hand is built in much the same way, except that the former is of a stronger build, and the left and right limbs are mirror images of each other (Fig. 5). While studying the skeleton, I was impressed by the metatarsal groove between the two splint bones. These two slender bones are attached firmly to the third tarsal bone in the middle and form a kind of guiding canal for some purpose. Precisely on the joint of the tarsal bone and the first phalanx, the fetlock joint, there are two sesamoid bones which, it seemed to me, function as a kind of a pulley wheel for a major tendon. I became very interested and started to study the anatomy of the horse. What I found was greater and more wonderful than I initially thought possible. I now look at horse riding and jumping in a entirely different way. The feet and legs of a horse are amazingly flexible, fast and strong. There are large tendons concealed under the skin including a double, very long pair of tendons which extend even over the hock joint above. Beyond the tendon can be found the long muscles, which can flex the hoof backwards with considerable strength and speed. This important mechanism involved in the jumping action is shown in Fig. 6. Here we see something of the anatomy. Two strong tendons, the superficial flexor tendon and the stronger, deep flexor tendon are firmly attached to the second and third phalanx bones respectively. The deep flexor tendon also has a check ligament. These tendons also form part of the 'stay apparatus' which, together with the muscles, enable the horse to stand while he sleeps. The suspensory ligament is of special interest in understanding the functioning of the small metatarsal or metacarpal bones. Take a look for yourself, for a moment, at the anatomy of this very complex and beautiful part of the horse. Ligaments are strong bands or membranes, usually composed of white fibrous tissue, which bind bones together. They are pliable, but practically inelastic. In many places, muscles, tendons and thickenings of the fasciæ, function as ligaments and increase the security of the joints. Atmospheric pressure

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(1)Darwin cites this in the sixth edition of the *'Origin of Species.'* It is interesting to study the differences between this and the first edition. In a note on that first edition, reprinted by Penguin Classics, 1985, it is written that Darwin in many cases in later editions weakened his arguments in an attempt to meet criticisms. When I read Darwin's arguments on homology, rudimentary organs etc. in the first edition, I could not avoid the impression that he intermingled his theory of Pangenesis with that of Transformation. Also, it was necessary for Darwin to explain how and why some organs vanish according to his theory. In *'A Provisional Hypothesis of Pangenesis,'* 1868, he states that little germs (gemmulæ) depart from each living cell in the body and travel to the germ cells (quoted from De Wit, 1989, p.697). I tried to follow Darwin's thoughts in this explanation of vestigial organs; as an organ becomes rudimentary, they are either too small or even abort and so they cannot send off their gemmulæ to the germ cells of the reproductive organs of the sexually mature individual. In this way they disappear from the hereditary material and are no longer to be found in their offspring or their descendants. If this were true, I cannot help thinking, reading between the lines of the first edition of this book, that the host of rudimentary organs cited in the literature are no more than rudiments of Darwin's wrong and rejected genetic theory! To quote de Wit (1989) p.697–98, and 593–594: 'Darwin was, against every severe criticism on the theory of the gemmulæ, the last to remain a defender of this genetic theory, which goes back to the Hippocratians (Leukippos or Democritos, or even Diogenes in 425 BC).'

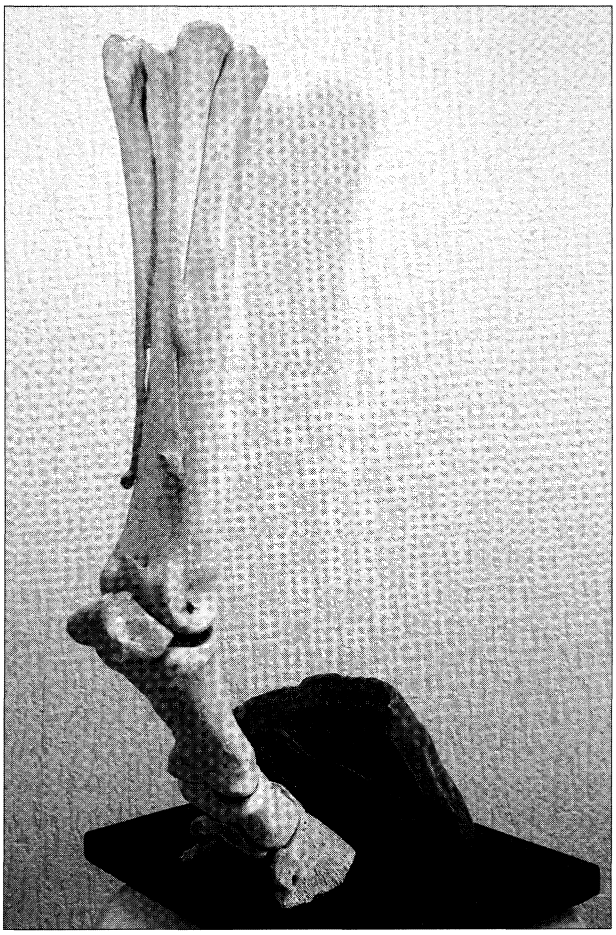


Fig. 5

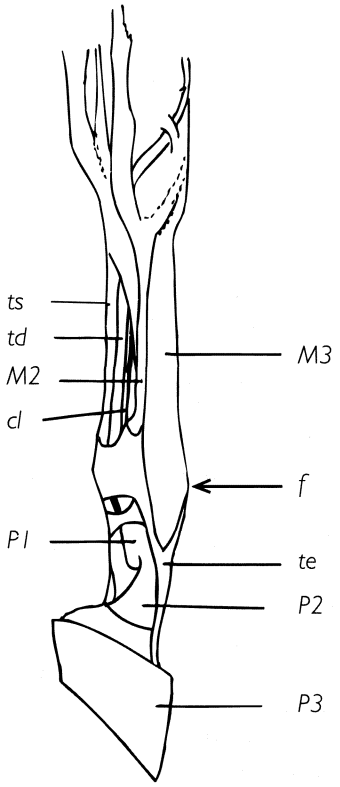


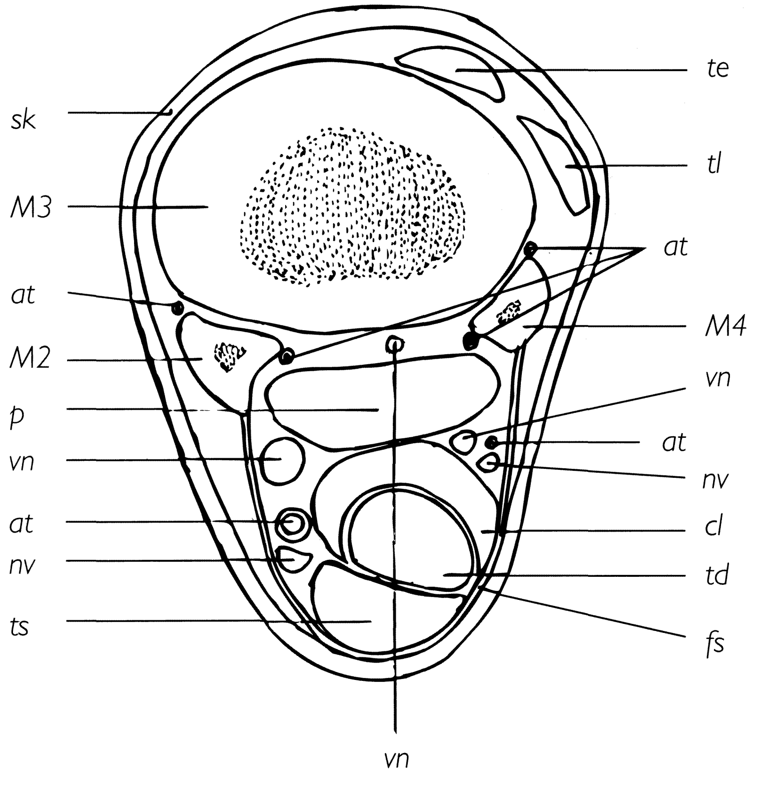
Fig. 6 Left forelimb of horse from elbow down

P1	*First phalanx bone*
P2	*Second phalanx bone*
P3	*Third phalanx bone*
M2	*Metacarpel 2*
M3	*Metacarpel 3*
f	*Fetlock joint*
te	*Common extensor tendon*
cl	*check ligament*
td	*deep flexor tendon*
ts	*superficial flexor tendon*

and cohesion play a considerable part in keeping the joint surfaces in place. The suspensory ligament of the hind foot lies for a great part of its length in the metatarsal groove, where it forms a wide, thick band. It is attached above to the large metatarsal and the tarsal bones. Below the groove, it divides into two diverging branches, as can be seen in the transverse section of Fig. 7 and part is firmly attached to the sesamoid bones which have already been mentioned. This highly modified ligament possesses considerable elasticity, and is termed the modified interosseous medius muscle. It

Fig. 7 Cross section of the right metacarpus of a horse

sk	*skin*
M3	*metacarpel 3*
at	*artery*
M2	*metacarpel 2*
p	*suspensory ligament*
vn	*vein*
nv	*nerve*
ts	*superficial flexor tendon*
te	*common extensor tendon*
tl	*lateral extensor tendon*
M4	*metacarpel 4*
cl	*check ligament*
td	*deep flexor tendon*
fs	*deep fascia*



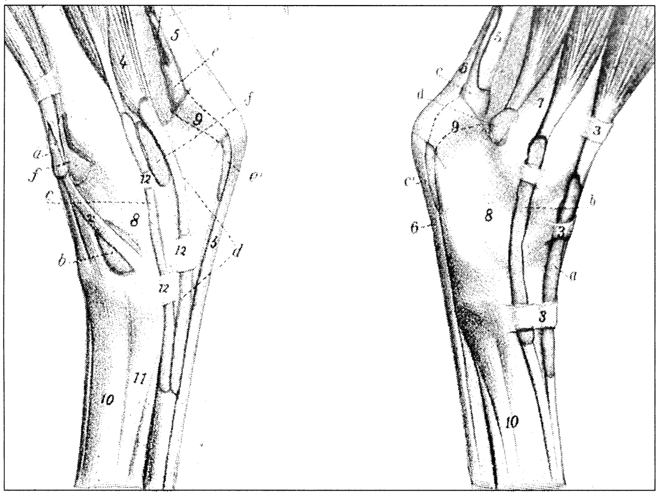


Fig. 8 Tendon sheath of elbow joint

consists mainly of tendon tissue material, but contains a variable amount of striped muscle, especially in the more deeply inserted parts and also in young animals. Its principal function is to support the fetlock and to prevent excessive dorsal flexion of the joint, when weight is put upon the limb. Clearly, the main function of this structure is to support the joint when the animal is landing and putting its full weight on the hoof, with all the risks of the horse spraining its 'ankle' on rough ground.

In my opinion, the metatarsal groove formed by the small metatarsal bones has an indispensable role in holding these important and special ligaments in place when enormous forces are affecting the delicate foot of the horse. A transverse section through the leg, at the middle of the metatarsal or metacarpal bones gives us an idea of the positions of other structures (Fig. 7). The deep fascia is attached firmly to the small metacarpals or metatarsals and so holds the whole structure together. To quote Sisson (1966): 'fasciæ are sheets of connective tissue, composed mainly of bundles of white fibres, with a greater or less admixture of elastic fibres in some cases. This deep fascia is composed of one or more layers of dense fibrous tissue.' In this sheath, the deep fascia (Fig. 8), you can find six arteries and three veins, two large nerves as well as the tendons and ligaments already mentioned. In this whole structure, the splint bones play an indispensable role. In what sense can they be called vestigial organs? Is there any possibility that time and change cause structures such as these to occur to form this wonderful mechanism for jumping and landing? Note well all the details of attaching ligaments and holding sheaths on the outside of the joint ligaments, securing the free movements of the long tendons. The cables, cable mantles and associated attachments on a bicycle, designed and made by human beings have some similarities to this complex structure. Let us be very humble as we take at last a look at this wonderful piece of design in the leg of a horse. All this is covered by a protective skin. What is going on there underneath that skin, when the horse jumps and lands?

To conclude, there are no vestigial organs in the evolutionary sense. Evolutionistic thinking obstructs real progress in science. Cuvier in his fight against transformism makes the following statement:

'Ideas of transformism are easy to imagine for a dreamer, but those ideas vanish for the anatomist.' (quoted in Hooykaas, 1976)

The study of anatomy and physiology guided by Cuvier's principle of correlation, give birth to insights which can help us better understand the functioning of animal and human bodies. These insights can be used for medical or technical purposes to create 'new' inventions. It is also inspiring for our personal belief in the Creator, our Lord and Master, to 'think His thoughts after Him.'

Lastly, a practical exercise on Fig. 9. Can you find functions for the eight showed rudimentary organs in man? This picture has been redrawn from a very recent biology book written for the higher levels of secondary school (Oskamp, van Bekkem and Groeman, 1990). Wiedersheim (1902) had a list of more than 100 of rudimentary organs in his textbook of biology. It looks as if this list is coming back into our books again. Year after year there were mentions of just four so called vestigial organs and here there are eight! In the days of Wiedersheim, all the endocrine glands were thought to be vestigial and how false that has proved to be!

We must pray for our Lord's help with our work as creationists, because evolutionary influences grow stronger and stronger in our time.

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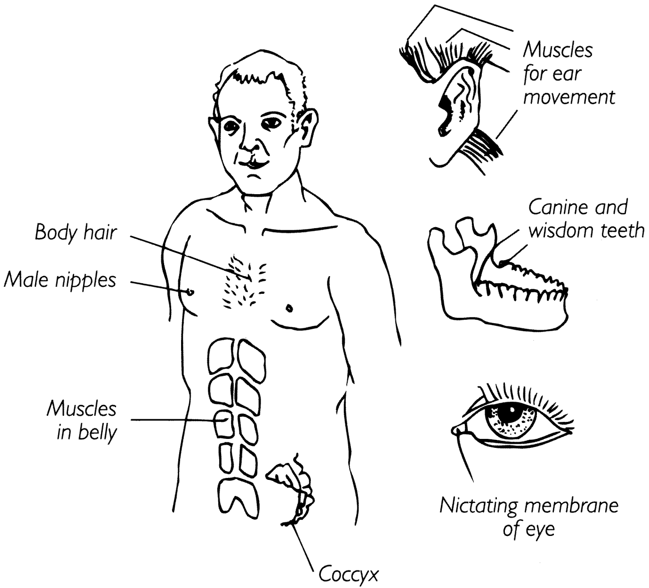

Fig, 9

This article was first given as a lecture at the Fourth Creationist Congress, August 1990, Hemer Sauerland, Germany, and is reproduced here with the permission of the organisers.

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Acknowledgement

The editorial committee would like to record their thanks to Mr. Gerald Duffett for preparing the illustrations for this article.

Human Language

Part 1: Its uniqueness

Tony Rummery

THE ASSERTIONS of Darwinian evolution, that man is evolved from other species, who are in turn evolved from further species and ultimately from single-celled animals, begs a very interesting question for me as a linguistics graduate. If structural features of one species, when compared with another, point, as it is alleged, to evolutionary processes and if man is the greatest product of that process, what can be said about the role of human language compared to other animals. Also, what evidence is there of a progression in the complexity of language from the simplest forms of life to human beings?

Perhaps we should begin by considering some features of language. Human languages consist of a number of components. Firstly, there are phonemes. These may be defined as the smallest particles of sound, and although are represented in the written language by vowels and consonants, they are distinct from them. For example, the word *'showman'* consists of one diphthong *('ow')*, four consonants *(s, h, m* and *n)* and one vowel *(a)*, but five phonemes, *'sh', 'ow', 'm', 'a'* and *'n'*. The next component is a 'morpheme,' which may be defined as the smallest particle of meaning. In the word *'international'*, for example, there are four morphemes: *'inter'*, meaning 'between,' *'nat–'* from the Latin for 'be born,' *'–tion'*, a suffix to indicate abstract or conceptual nouns, and *'al'*, as an adjectival ending. Some morphemes have no meaning, but simply aid the pronunciation of a word. A good example of this is the word *'an'* in English; *'a–'* indicates the indefinite article, and *'–n'* is a 'null' morpheme used to assist pronunciation in a phrase such as 'an apple.' Morphemes combine to form words, and words sentences.

Rules of Language

The rules governing the interrelationship between words in a sentence are termed syntax and grammar. The sentence 'The girl gave the boy an apple.' answers the questions 'Who gave?', 'What was given?' and 'To whom was it given?' The interrelationship between these words in English is expressed almost exclusively by word order. In Russian, the words could be in almost any order, and meaning would not be lost, because the interrelationship is expressed by the words modifying their endings. Both languages have rules, however: without those rules there is no meaning.

Even the way words or sentences are uttered can affect their meaning. This is obvious in tonal languages such as the various Chinese dialects, where the meaning of a word is not just determined by its constituent phonemes, but also the intonation (rising, falling, level, etc.). However, it can be true in English, where the speaker can, for example, express attitudes such as doubt, annoyance, disgust or admiration by his tone of voice.

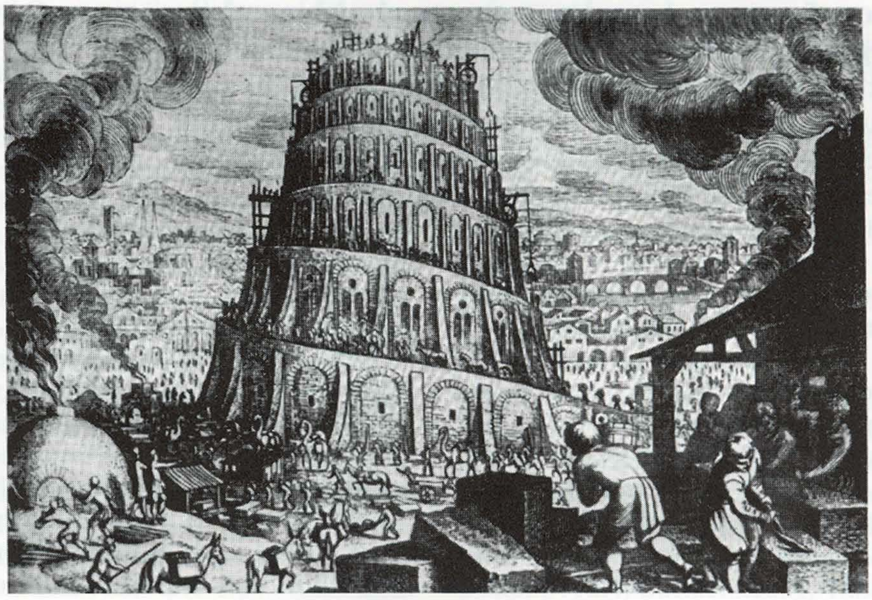
Many European languages have 'register' associated with words. Compare the English words 'Mansion'(high register) 'House' (neutral) and 'Shack' (low)—all mean substantially the same in terms of the concrete object they are describing, but say different things about what the speaker feels about them. Although not strictly meaning, it is part of the 'package' of verbal communication. In some languages, this aspect of communication involves morphemes: a Russian speaker has a variety of suffixes at his command to intimate how he feels about the word he is saying, some of a positive character, some of a negative.

Human language then, is a highly sophisticated medium for the transmission of information, enabling not only basic information, such as the whereabouts of food or the presence of danger to be shared with others of the species, but also allowing abstract, emotional and spiritual aspects of the life of the speaker to be communicated.

Animal Communication

It is clear that forms of communication are known in the animal kingdom. Bees have a complex dancing pattern to communicate the whereabouts of food. Birds can warn of the presence of a predator or attempt to attract a mate by their calls. Marine creatures can communicate over miles of ocean by low frequency sound waves. It is, therefore, quite unsurprising to find that linguists have been attempting to conduct some quite well publicised experiments with man's 'cousin' in the evolutionary process, the chimpanzee, to see if there is any evidence that some form of human-like language is to be found in that primate. D. & A. J. Premack pioneered this work.

Because the chimp's vocal organs are insufficiently developed to make the fine nuances of sound required for human language (!), a system of signs were used, *e.g.* a blue triangle = 'apple,' a diamond means 'to give,' and so forth. One chimp acquired a vocabulary of 132 words and was able to say 'Give Mary apple' and even answer the question '? Apple different banana' using the signs. The difficulty with these experiments has been to analyse how much the chimp has learnt because of a true, inbuilt human-like linguistic capability, and how much they have learnt because of a sophisticated ability to mimic. This difficulty has led some linguists and behaviourists to discount the findings of these experiments pending a fuller understanding of chimp behaviour and how that interacts with the training the chimps have received.



The Tower of Babel (Matthieu Merian, 1593–1650)

We are left with the observable facts that communication does exist among animals. The nub is that the language—if we can call it that—of animals is very highly specialised. A bee can communicate the whereabouts of pollen to the hive with his 'language,' but no more. A bird may have certain calls, *e.g.* 'danger,' 'be my mate,' or 'this is my territory,' but little more. Not only do even advanced primates lack the precision speech organs of human beings, but no evidence has been presented that animals can communicate adaptively, that is, by using linguistic building blocks to form new concepts and ideas. Neither has any animal devised a means of written communication, an entirely unique feature of human language that enables information to be transmitted long after the death of the originator and thereby enables the species to accumulate knowledge over centuries.

The household pet who is able to come when called, or 'sit up and beg' is experiencing a behavioural, not a linguistic, process and if presented with a set of oral instructions that it has not encountered before, will be unable to respond as required. It is exploiting the animal's instincts for its basic needs, not communicating with it in the sense of human language. Human language is not specialised in that way: a human can exploit language to express a wide range of concepts from the concrete to the abstract with his fellow man. Just consider the number of morphemes that are present in your daily newspaper, and compare that with the range of 'morphemes' available in animal communication!

It seems apparent then, that there is both a quantitative and a qualitative difference between animal and human language. It would not be unreasonable for one to expect to see, if Darwinian evolution were true, a solid progression in the development of language up the hierarchy of evolution. What one actually sees are animals displaying some features of human language, such as the ability to direct communication to an individual, or for a species to associate a particular sound with a particular meaning, but all falling far short of the literally hundreds of thousands of words available in modern English alone, and the complex web of syntax and grammar, plus the ability to express abstract concepts and ideas and record information for posterity, that characterise even quite 'primitive' human languages (a term that I am not entirely happy with as a linguist). Furthermore, even the primates lack the speech organs necessary to utter the sounds of human language.

Complexity of Human Language

The complexity of human language must be emphasised. The permutations of morphemes in a human language is vast. The Russian Ozhegov dictionary lists around 60,000 words; the English equivalent, the Oxford English Dictionary lists 500,000 words. Although this word count includes many morpheme repetitions, languages allow for an almost infinite series of concepts to be expressed. New concepts can be 'borrowed' from other languages, or simply made up from existing morphemes, *e.g.* the German *'Fernsprecher,'* from *'fern–'* meaning 'far' and *'–Sprecher'* meaning 'speaker': a direct translation, or calque, of the Greek *'Telephone.'* This flexibility and opportunity for innovation is poles apart from the basic communication systems that can be seen in animals, that seem very much 'locked in' to an animal's instinctive behaviour.

This begs the question, if human language is quite distinct from animal communication, how did it develop? In dealing with this matter, I am considering human language as a whole at this point, not how individual languages or language groups came into being. There have been many attempts to conjecture as to the origin of human language, but the Danish linguist, Otto Jespersen, gathered these theories into several groups.

1. *Environmental Imitation.* This theory appeals to the existence of onomatopœic words in languages, and suggests that human language is an imitation of the sounds of the environment, especially, of course, other animals. It does not enjoy wide support among linguists, because only a very small percentage of words in a language are onomatopœic.
2. *Instinctive Noises.* This theory claims that human speech originated with the interjections that we all make when pleased, or happy, or in pain. Not only can the objection to the first theory be raised against this, but also the noises—phonemes—that are used for these sorts of sounds bear very little in common to the sounds used to construct words in languages.
3. *Stimulus.* This theory looks to stimuli from the environment to explain the origin of language. The idea is that human beings responded to their environment in such a way that they then produced sounds in keeping with that. The evidence for this would be adduced from words that have a similar sound for a particular meaning, *e.g.* Mama, which is said to relate to the lip movements of a baby approaching the breast. Again, there are only sparse examples of these sorts of words, so the theory as a complete explanation of language development is lacking.
4. *Rhythm.* This theory looks to the use of grunts, leading to rhythmic chants while people were working together in a community. This in turn led to language. Proponents of this theory would point to the almost universal use of rhythm in song and in language. Apart from the obvious quibble of how a languageless human race would be able to work together in that sort of communal work setting, there is still the fact that rhythmic chants may point to language, but the complexity and depth of expression of true language would still need to be explained.
5. *Romance.* This was Jespersen's own theory, that human language arose from the emotional side of life, from feelings associated with love, creative feelings, and so forth. But again, this fails to explain the full range of human linguistic expression. It is clear, therefore, that secular linguists cannot really answer the question of where language originated. There is only one explanation that answers the questions.

Biblical Account

In Genesis 1, we read of the creation of the heavens and the earth. In verses 3, 6, 9, 11, 14, and 20, God speaks. That speech is a decree. In v.22, God blesses the sea creatures: what God says is not directed to them as such. However, in v.28, we read that God speaks to our first parents '... and God said to them ...' The Lord then continues with a detailed command to man as to how to govern the Earth. We have just been told in v.27 that man was created in God's image. Surely herein lies the answer. We have a true linguistic process as part of our make up because our Creator does, and we are made in His image. We can experience spiritual and emotional life, we have a creative ability, we have an intellect and we can communicate with other humans and with our Creator. Moreover, we were created to serve Him in obedience to His commands. After the time of beginnings and the Fall, God continued to speak, through the Law given by Moses, through the prophets, and supremely through the Lord Jesus Christ, the Word, a title of the Lord Jesus that thrills a Christian linguist.

It should not be a surprise to find some elements of human language among animals, as they too are creations of the same God, but we must be clear of the immense differences between animal and human communication. One of the first tasks that Adam undertook was the naming of the animals, indicating his authority over them. Adam was therefore created with a linguistic ability. Adam and Eve's conversations in the garden are recorded in terms of human language, as indeed are his communications with God. Adam speaks of his feelings for his wife in v.23—a long way from the elemental grunts postulated in Jespersen's theory.

I hope to have shown something of the power and complexity of human language compared to animal communication, and the lack of evidence either through our supposed evolutionary forbears or through the study of the past history of the human race of an origin of language apart from that offered in Scripture. My view is that the phenomenon of human language is one of the clearest indications of the reliability of the Scriptural account of creation.

How does this account for the diversity of languages today? Does that diversity call the Scriptural account into question, for surely, if the Genesis account be true, the descendants of Adam and Eve would have spoken the same language? I shall consider these points in the next part.

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Tony Rummery is a graduate in linguistics from the University of Surrey. His specialist interest is in the Russian language and he has been involved in Christian support to that country. He now works as an analyst–programmer. The second part of this article will consider the diversity of language and is scheduled for the next issue of *Origins*.

Reviews

Michael Faraday, Sandemanian and Scientist, by Geoffrey Cantor. MacMillan, 1991. 359pp., ISBN 0 333 55077 3, £40.00

Reviewed by David J. Tyler.

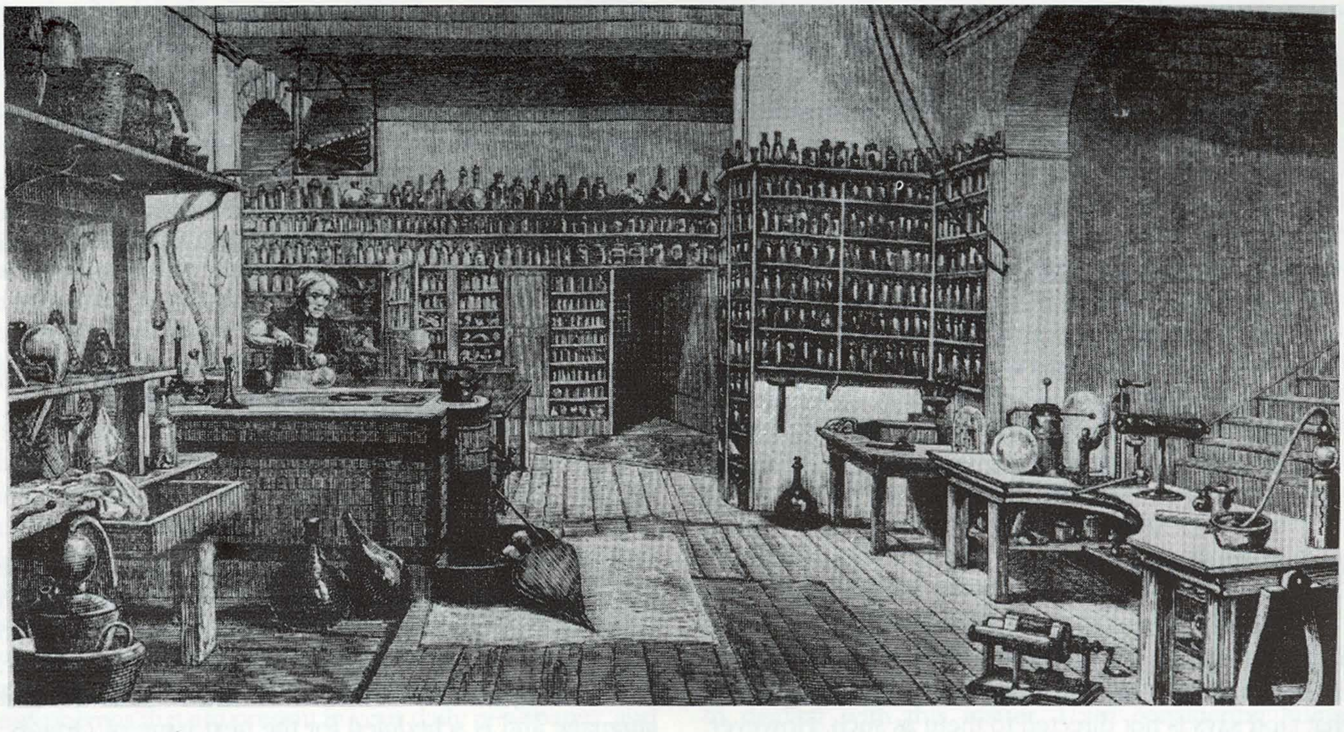
THIS book is one of the most fascinating and stimulating biographies I have read! Perhaps by nature I am predisposed to take an interest in the life of one of the heroes of physics. Furthermore, I must admit to a sense of pride when I see in Faraday the example of a Christian brother using the gifts that God has given him and showing the fruits of the Spirit in his life. Many have found Faraday's life to be exciting and glamorous—he grew up in a poor family with very limited formal education but in adult life he was a leading and respected figure in the world of science. Cantor's writing excels not only in bringing out the depth of personality and the genius of this remarkable man, but also in exploring a great variety of issues in an invigorating and constructive way.

There are, however, several puzzles surrounding Faraday. For example, he belonged to a small Christian community which held anti-establishment views and had numerous sectarian tendencies—and yet he was a Fellow of the Royal Society and was fully accepted as a leading figure in the scientific community. Furthermore, he was an earnest disciple of Christ, who sought to bring every part of his life under the authority of his Master—and yet he could remark to the Countess of Lovelace:

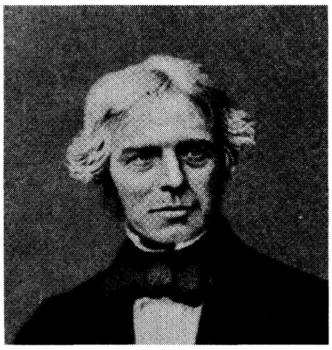
> 'There is no [natural] philosophy in my religion ... I do not think it at all necessary to tie the study of the natural sciences and religion together, and, in my intercourse with my fellow creatures, that which is religious and that which is philosophical [*i.e.* scientific] have ever been two distinct things.'

Some have concluded that there were 'two Faradays'—one worldly and the other unworldly—who were antagonistic to each other. The great strength of Cantor's book is that he rejects this analysis as unworthy of the great man. Instead, he starts with the premise that Faraday was a more rounded personality, characterised by coherence, consistency and integrity. Cantor's masterly study shows us that we have much to learn from Faraday about the relationship between religious beliefs and the development of science.

Cantor employs a very interesting methodology for filling out Faraday's beliefs and attitudes. Faraday was a whole-hearted member of the Sandemanian Church and, for many years, he served as an elder within the London communion. As is the case in modern ultra-separatist groups, unity within the Sandemanian Church was handled in a distinctive way. Unity was so stressed that any semblance of division was regarded with horror and as something displeasing to God. Internal strife, hard feelings and also variances of opinion were so serious that members were not able to sit down together at the Lord's Table until the matters were resolved. Doctrinal differences were not acceptable: it was necessary for the truth to be determined speedily and for all members to give full assent to the conclusions of the church. Unity was equated with uniformity and considered to be the antithesis of confusion and chaos. Faraday was part of this system—and not a grudging participant! It is reasonable to infer, and in many cases Cantor has found direct evidence to support inferences,



Faraday's Laboratory



Michael Faraday

that Faraday's views were congruent with those of the Sandemanian Church body. Once this insight into Faraday's mind-set is grasped, it opens the door to a re-evaluation of his life, his scientific work and his role as a public person.

Despite what Faraday communicated to the Countess of Lovelace, his science was actually rooted in a biblical understanding of the providence of God. In Faraday's understanding, the natural world constituted an economy in the sense that all events are tightly ordered by divine providence. Cantor writes:

> 'Nature is thoroughly lawlike and only God possesses the supernatural power to change or suspend the laws of nature. The forces in nature and the laws which natural things obey are constant through space and time; they are, in other words, universal and unchangeable. The constancy of nature's laws was guaranteed by Faraday's belief in their divine source; indeed, science would be impossible without this guarantee. Moreover, providential design through universal, invariant laws guarantees our own personal safety and the very possibility of life itself.' (p.170)

Cantor makes demands on his readers, in that he expects them to have some grasp of the historical and scientific background of his subject. Since Faraday involved himself in so many fields of human endeavour, my advice is: do not take up Cantor's book before gaining some prior knowledge of Faraday's life. However, after this preparation, Cantor's book provides rewarding and stimulating discussion of a great diversity of topics, of which only a few can be touched on in this review.

Faraday's thinking on scientific method showed significant development during his career. In the early years, he had a very simplistic view of 'facts'.

> 'Faraday nailed his flag firmly to the empiricist mast. He believed that facts, and only facts, are the basic signs of nature and the foundation on which the whole edifice of science has to be constructed. As he told the audience on his lecture on mental education, a 'fundamental fact ... never fails us, its evidence is always true', and he portrayed science as dependent 'upon carefully observed facts'.' (p.200)

This was accompanied by a rejection of the value of hypotheses in scientific work, which he regarded as unhealthy speculation and evidence of vivid imagination. After reviewing numerous source documents, Cantor concludes that Faraday was a committed positivist, who wished to base science firmly on facts and to excise all hypotheses. This attitude is attributed partly to a lack of self-confidence, partly to a recognition that speculation without experimental checks was a practical danger among his contemporaries, and partly to a tendency within the Sandemanian Church of avoiding speculative interpretations of Scripture in favour of being taught by the plain and inerrant words of God.

However, it is interesting to learn that this aversion to hypotheses did not promote rapid scientific progress! During the 1820's, although Faraday was a productive and efficient researcher, he was certainly not a world class scientist. This suggests that the study of 'facts' alone rarely takes us far. Thereafter, when Faraday became more self-confident and more willing to develop hypotheses, progress was so much more dramatic! Cantor writes of his last major scientific investigation in 1859:

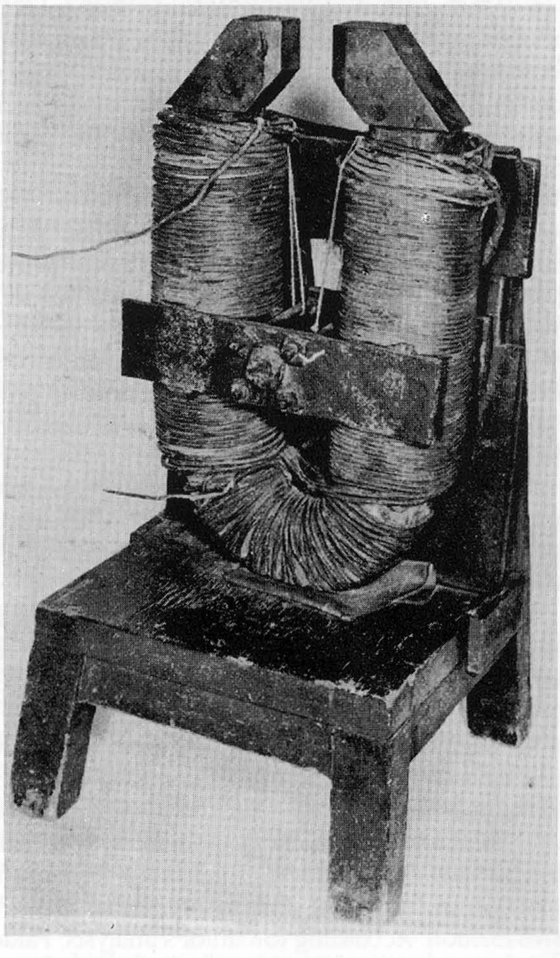
> 'Turning to his Diary, we find a series of entries which begin with brilliant flights of imagination, showing that his imaginative faculty had not been diminished by advancing age ...'
>
> 'In the midst of these speculations he proclaimed, 'Let the imagination go, guiding it by judgment and principle, but holding it in and directing it by experiment'.' (p.254–5)

In his best years, Faraday did not approach the world with an 'open' mind, as a little child sitting down before the facts. Rather he operated with a complex mixture of metaphysical and metascientific principles, speculations, hard-won laws and incorrigible facts. He used his imagination and technical skills to interrogate nature in an incisive fashion. According to Cantor's analysis, Faraday's science was so marked by his Sandemanianism that it provides a crucial key to the whole.

Faraday's views on origins were never overtly stated. Using Cantor's methodology, we may infer that he was opposed to evolutionary explanations of origins and that he would have been sympathetic with the advocates of 'scriptural geology' (that is, some form of Flood Geology explanation of the Earth's rocks and fossils). However, we do know that he was an amateur naturalist, frequently visiting zoological and botanical gardens. He took an interest in classification and memorised the Latin (scientific) names of plants. Cantor comments:

> 'The simple method of ordering employed by Linnæus and his concise (and apparently theoryless) use of language must have appealed greatly to Faraday. For one who saw 'Sermons in stones, and good in everything', the flora that Faraday studied must have provided him with further evidences of God and His providence. To see these he did not require uniformitarian theories in geology or Darwin's theory of evolution. Instead he may have viewed these theories as distractions from the truth and as indications of human pride.' (p.146)

I wish to conclude this review by drawing attention to testimonies of Faraday's Christian character. Cantor points out that even a cursory examination of the contemporary literature reveals that Faraday had an attractive personality. He was almost invariably portrayed as a man of integrity



Faraday's Electromagnet

who was unaffected by fame and who was charming, congenial and helpful to others. For example, one of Faraday's auditors remarked 'how rare it is to find so much talent, with so much humility, so much appreciation of all there is to charm in this world, without being spoilt by it!' There is no doubt that Faraday possessed positive personal qualities that were recognised readily both by his friends and by those who only saw him from afar. In Cantor's view:

> 'Faraday's public persona was shaped by his religion. Indeed, many of the moral virtues which others saw in Faraday were considered essential Christian qualities by the Sandemanians.' (p.114)

Postscript: Michael Faraday and William Brande

Cantor mentions that Faraday attended William Brande's lectures on geology at the Royal Institution (p.145) and that he joined the Geological Society and served on its council. This demonstrates that Faraday was far from oblivious to geological issues! I find it puzzling that Cantor does not develop the potential links between Brande and Faraday, as both were prominent members of the Royal Institution and both were committed to a historical understanding of the Genesis account of origins. Brande was Professor of Chemistry at the Royal Institution and his lectures on geology were published in 1829 with the title 'Outlines of Geology'. In order to make a point here, I will quote Brande at some length. In the first few pages of his book, he refers to geologic processes now active and comments:

> 'The bare mention of these, the genuine and legitimate objects of Geological science, naturally brings to mind the awful and magnificent account of the creation, conveyed to us in scriptural history; and geological writers have not unfrequently attempted to combine their speculations with the announcements of holy writ. Mixing up the chronology of Moses and the history of the deluge with their own short-sighted speculations, and with observations hastily made and imperfectly reasoned upon, they have presumed, on the one hand, to verify and illustrate, and on the other, to question and controvert. But the arrogance of imperfect knowledge is nearly equally prevalent in both ...' 'I shall not, therefore, now, or upon any other occasions, meddle with the adjustments of these and like speculations to the records of Holy Writ ...'
>
> 'Far, therefore, from endeavouring to explain or controvert the arguments which have thus been by some annexed to, and blended with geology, I shall altogether omit them, referring such as are interested in the legitimate part of the discussion, to the masterly work of Mr. Granville Penn, entitled 'A comparative estimate of the Mineral and Mosaic Geologies', and I shall almost exclusively confine myself to the detail of those facts which lead to useful conclusions: hypotheses I shall not enlarge upon, because they rather amuse than instruct; and I shall only lightly touch upon such theories as are remarkable for their notoriety, or important from their connection with, and illumination by, the leading facts of our science ...'

For the record, it should be noted that Granville Penn was a 'scriptural geologist', and the title referred to appeared in 1825.

I find it highly significant that Brande makes a strong distinction between 'facts' and 'speculations' or 'hypotheses'. The similarity with Faraday's earlier views on scientific methodology is so obvious that it hardly needs to be pointed out.

In an age where geological speculation was rife, Brande felt the need to pull in on the reins to restrain excess. His desire to distinguish facts and observations from human interpretation was surely a healthy corrective. Brande had no problems with the observations of geology—he urged a positive attitude to geological research because it 'embraces enticing, useful, dignified, and even sublime materials for discussion and instruction'. His course of lectures shows him to be a discerning scholar, an able teacher, and one deserving respect from his peers. It is my view that Faraday would have adopted exactly this stance in these controversial matters, and that this origins issue should be considered as a potential influence on Faraday's earlier thinking on scientific methodology.

Creation Science: confirming that the Bible is right, by David Rosevear. New Wine Press, Chichester 1991, 160pp., £4.95

Reviewed by Paul Garner

As many readers of *Origins* will be aware, Dr. Rosevear is the Chairman of the Creation Science Movement, and has had a career as a research chemist and as a senior lecturer at Portsmouth Polytechnic. He has authored a number of articles in his own field of research, and he has widely lectured on science and the Bible in the U.K. and abroad.

After a brief introduction, the author cuts right to the very heart of the creation–evolution debate. He notes the links between acceptance of a non-theistic view of origins, and issues such as the sanctity of human life and racism, and questions the effect of evolutionary ideas on our concepts of death, sin, redemption and purpose. If there was a god behind evolution then it appears that he is different to the God revealed to us in the Scriptures.

The subsequent chapters present the lay reader with an introductory survey of the scientific arguments marshalled in support of the creationist world-view. Basic laws of science are discussed, and the question is posed as to why, in a supposedly evolutionary universe, scientific laws are immutable. Flaws in the 'primæval soup' story are exposed, with particular reference to the Miller-type experiments familiar to every school child. The point is made that information is not a property of matter itself, rather it is imposed upon it by a transcendent intelligence.

Mutations and natural selection are exposed as inadequate to explain the diversity of life forms. A telling point is made when biological evolution is summed up as the belief that 'man is the product of a very protracted series of mistakes in the copying of genes of a protozoon' (p.48). There are further chapters dealing with Denton's biomolecular arguments, examples of design in living creatures, geological evidence for catastrophe, and the age of the earth.

The absence of transitional organisms in the fossil record is noted. However, I have one point of disagreement with Dr. Rosevear's commentary on Archæopteryx. Dr. Rosevear argues that Archæopteryx was probably a flightless bird. However, Olson and Feduccia (*Nature* 1979; 278: 247) have argued that the robust furcula present in this bird overcomes the objection based on lack of a large sternum. Also, the presence of asymmetric primary feathers argue in favour of powered flight (Feduccia and Tordoff, *Science* 1979; 203: 1020). These points bolster the creationist case.

Three chapters are devoted to a survey of human evolution, and the various ancestors proposed for man. The uniqueness of mankind is emphasized. The book concludes with a look at the work of each of the six days of creation, and the biblical genealogies.

Finally, it is unfortunate that some of the photographs in the book have not reproduced as well as they might, as this detracts from their impact. One example is the striking fossil fish on page 84 which was preserved in the middle of a meal, thus demonstrating the rapidity of the fossilization process in many ancient sedimentary deposits.

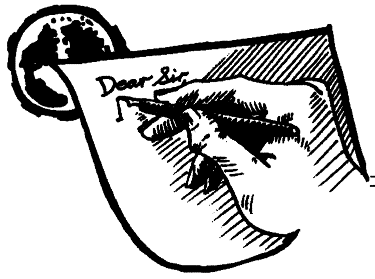
Origins, by B. G. Ranganathan. Banner of Truth, 1988, 36pp., £0.95

Reviewed by Nancy Darrall

The aim of this small booklet is to present a short introduction to the subject of origins. There are not many short publications on this subject available and so an additional item is welcome. Outlines of the positions held by evolutionists and creationists are given briefly and various arguments and supporting scientific observations are put forward for the creationist position. These include the complexity of design in the natural world, evidence from the fossil record, arguments from information theory and conflicts between the laws of thermodynamics. The short sections that follow on the social and moral implications of evolution and the differences in the underlying philosophies of creation and evolution are also a useful introduction.

Unfortunately, the 'theory' of creation is defined with no reference to Scripture. There is no acknowledgement that our views on origins should be determined first and foremost by biblical revelation. Corroborative scientific observations are good to have, we all welcome them and use them in our discussions. However, the Bible is our authoritative starting point in such matters.

The booklet concludes with a summary of the Christian gospel which is good to have at this point as many non-believers ask questions about the subject of origins. A more up-to-date bibliography and also addresses for U.K. as well as U.S.A. sources of creationist literature would have been useful.



Correspondence

The Revd. M. Roberts

Extract from a letter from the Revd. M. Roberts, Chirk, Clwyd.

I cannot see what further suspicion has been cast on evolutionary theories, as claimed by Paul Garner, by recent finds in Canada of Precambrian animals. Mr. Garner reckons that evolutionary theories are challenged first by a non-glacial origin of late Precambrian tilloids which would preclude a moderation of climate. Here he quotes Schermerhorn, who maintains that they are non-glacial and of catastrophic origin. These 'mixtites' are a very baffling set of rocks as I know to my cost. There are a whole series 40 miles east of the mouth of the Orange River in South Africa in the Numees/Kaigas/Hilda formations with Numees as the type area.

At Numees was an old copper mine which I had to survey for a mining company. The mineralised rocks were overlain by a mixtite of fairly rounded boulders in mud. In a couple of places were about a foot of varves and in one place these varves were deformed from above by an 18-inch boulder. Varves are a strong indication of glacial origin and the boulder must have been dropped from above by a melting hunk of ice. Elsewhere, mixtite beds were a mapper's nightmare, grading into pure sandstone and also eroding the underlying beds of sandstone very soon after deposition. Here the deposition seemed to be very rapid—catastrophic? Thus I would conclude that these are at least in part glacial. I would also point out that in 1974 there was a limited literature on these mixtites and they attracted much controversy. Now the weight of opinion is that they are glacial tillites (M. Hambrey, *New Scientist* 1 February 1992). He also gives evidence for an almost world-wide glaciation sometime before the Cambrian (700 million years ago). Hambrey gives interesting, and to my mind wholly convincing parallels of the Precambrian tillites and recent ones.

I fail to see the logic of Mr. Garner's conclusions for the evidence that these (Canadian) fossils were deposited by the Deluge. Submarine currents are still in action today, *e.g.* at the edge of the continental shelf, giving rise to turbidity currents, thus the fact of an ancient submarine current does not in itself prove the deluge. Further, if evolution were true, one would expect to find some kinds of fossils at a lower stratigraphic level. Thus, in combination with a glacial origin of the 'mixtites,' evolutionary biology and uniformitarian geology are not contradicted at any point mentioned in Mr. Garner's article. Does that mean that evolution is true after all?

St. John

P. Garner

Reply to the above letter by Mr. Garner.

With reference to the interpretation of the Precambrian mixtite beds including the interpretation of the presence of varves in supposedly glacial sequences, it is indeed true that varves can certainly be formed under glacial condition, but they are not exclusive to this environment. For example, a paper by Lambert and Hsu (1979) provides evidence for the rapid formation of varve-like sediments from catastrophic, turbidity underflows in a Swiss lake. In one location, five laminæ formed in a single year. Neither glacial conditions nor a great deal of time were required for these deposits to be formed. The research of Berthault (1986, 1988) may also be relevant here.

Rev. Roberts also refers to the presence of erratic boulders, or dropstones, present in laminated sediments. A common interpretation is that these isolated blocks have been dropped from floating ice. In some cases this may well be the correct interpretation, although it is not the only one. Schermerhorn (1974) discusses numerous alternative possibilities, including rafting by kelp, driftwood and animals. Of course, an evolutionist would discount all but algæ in the Precambrian, but in a creationist model, where supposedly successive faunas and floras existed contemporaneously, these other possibilities remain.

Some non-glacial erratics, with which I am personally familiar, occur in the Cambridge Greensand. Numerous angular and rounded boulders have been recovered from this bed at the base of the Lower Chalk formation (Hawkes, 1943). The largest collection of these erratics is to be found in the attic of the Sedgwick Museum, Cambridge. Examination of the evidence leads me to conclude that the most likely mode of transport for these erratics was the biological rafting in the roots of floating trees.

I have read the *New Scientist* article by Hambrey (1992), but my views on the origin of Late Precambrian mixtites remain essentially unchanged. Most of the evidence marshalled in favour of glacial origin has been discussed previously in the published literature and possible alternative explanations provided. Even surface micro-texture on mineral grains supposedly diagnostic of glacial environments (Hambrey 1992, p.47) have been reported from the beach environment (Setlow and Karpovich, 1972).

With reference to my comments on the Flood, I would like to point out that I did not claim that the Canadian fossils were 'proof' of the Deluge. What I did say was that the evidence is consistent with the hypothesis of rapid burial during the Flood. This is a crucial difference, which ought not to be overlooked. Evolutionists have struggled for many years with the problem of explaining the sudden appearance of complex and divers life forms in ancient rocks. I reiterate what I wrote in my original article—the most recent palæontological evidence helps them not one iota.

References relevant to the above letters:—

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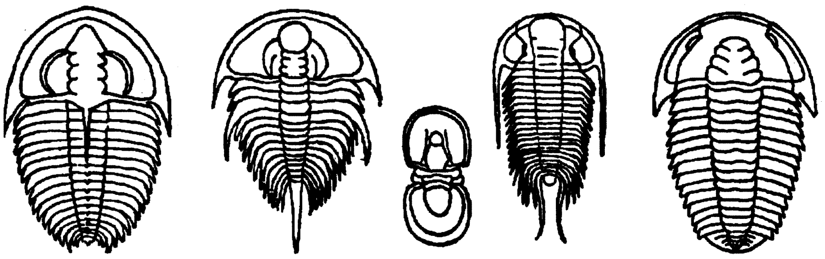

Cambrian Trilobites
Callavia, Olenellus, Paradoxides, Olenus & Agnostus

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• Journal of the Biblical Creation Society •

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ISSN 0953-2773

Printed by Inkon Printers Oldham Street Hyde Cheshire SK14 1LL Tel: 061-368 3444